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NEW WORLD ANTIQUITY (NWA) JOURNALS

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Editor Egerton Sykes
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Canadian Associate Editor Thomas E. Lee

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MEN OF GOOD FAITH

The two articles in the present issue from our Canadian Editor Tom Lee and Carmen Baggerly, serve to highpoint the fact that the age long dispute as to the possibility of certain shaped stones being of natural origin or man made, still remains much to the fore.

I have a feeling that both of these gentlemen are right in their assertions, but not completely so. The process of glaciation, with the slow grinding movement of ice sheets over hundreds of miles obviously produced stones which resembled man made tools, I have picked these up in many parts of the world, but that does not imply that all such shaped stones are of natural origin.

On the other hand primitive man would obviously pick stones for making into tools where a portion of the work needed had already been done for him. This is well within the established pattern of human behaviour and any variation from it would constitute an abnormality.

Possibly an answer may lie in terms of associated finds. When one has a series of artifacts which might be either man made or natural stones, the deciding factor is surely the finding on the same site of artifacts about which there can be but little dissention. Also there must have been the preliminary stage when man began to use any stone which would fit into his hand as a tool, this was the preliminary stage to the actual manufacture of tools by grinding or flaking.

E.S.

THE CARLOS CRESPI COLLECTION, CUENCA, ECUADOR

© J. Manson Valentine, 1968.

A synopsis of an unpublished paper.

The author has made two visits to Cuenca in the southern Ecuadorean Andes for the purpose of studying and photographing the highly controversial collection of precolumbian artifacts accumulated over a period of forty years by Padre Carlos Crespi of the Colegio Padres Salesianos.

To begin with, the collection is huge, comprising at least a quarter of a million items. It also reaches extremes in diversity of content and in chronology. But its main claim to fame lies in the apparent Old World character of much of its material. The stamp of ancient Mediterranean cultures is practically inescapable. For instance, Etruscan relationship can be seen in many ceramic pieces not only in their shapes and techniques of execution, but in their adornment with winged heads and winged lions. There are also beautifully fashioned vases of graceful form decorated with polychrome floral designs, masks and symbols that strongly suggest a Cretan or Egyptian culture. Certainly they do not belong in any known archaeological series in *this* hemisphere.

Still more bewildering are the heavy, bronze plaques of obviously ancient design that incorporate an acanthus leaf motif and depict a human profile that might easily pass for Etruscan or proto-Greek.

Many symbols of an archaic and apparently universal system of esoteric knowledge appear throughout the collection and are inscribed in all manner of media from stone and precious metals to clay and the biologicals including bone, ivory, tortoise shell and even the snout of a saw-fish. Sun, circle-cross and serpent symbols are, of course, ubiquitous; but one of the most astonishing finds is a perfect, silver caduseus said to have come from the same underground cache that produced silver crescent moons bearing human profiles. The latter have been verified from a reliable collection in Quito where they are duplicated.

The presence, in the Crespi collection, of numerous stone tablets on which are incised hieratic characters resembling Etruscan or ancient Greek, carries implications of tremendous importance if authenticated. So also does the depiction of elephants and other animals unknown in South America in recent times. The elephants appear as heads constituting portions of composite, symbolic figurines, or they occupy conspicuous places in outline on tablets of stone or gold along with various different emblems. So far as the author is aware, no other collection in Ecuador or in Peru contains such anachronistic material. However, a golden elephant effigy has recently been unearthed at an archaic site in southwest Colombia.

Fully as important and meaningful as the stone tablets is Father Crespi's large collection of heavy plates of copper-gold richly embossed with vignettes built around biosymbolic figures and metaphysical signs.

Efforts have been made to trace not only the origin of this impressive accumulation of artifacts but its authenticity as well. The "Cavernas", repeatedly referred to by the Padre as the sources of the treasure, turned out not to be caves but secret burial repositories that might or might not have been associated with actual entombment of the dead. Practically the entire collection had been brought to Father Crespi by the Indians working over a long span of years. He had never seen the caches and therefore could tell us very little about them, save their general and often vague locations. One thing, however, we did learn through personal and hard contact with the local terrain: there are no caves in the high, metamorphic Andes. They have been utterly destroyed by the violent up-thrusting and faulting when the lofty mountains were formed, a relatively recent event.

One day, while photographing the collection, we ran across a clue. A large, onyx stalactite had been worked into the semblance of a face for whose long beard the pointed, ripply stone was admirably suited. This piece could only have come from a large cave, and the only geologic strata capable of containing such caverns lay far to the east in Amazonia. Consequently, the expedition's attention was turned in the direction of the valley of the Napo, a tributary of the Amazon, where, after an adventurous crossing of the Andes, we eventually arrived. Our objective was Archidona, land of the Aucas and terminus to navigation of Ecuador's only road penetrating her vast, Amazonian wilderness.

Here we found not only huge caves, but mysterious petroglyphs on rocks indicating ancient occupancy of the region. Most unfortunately, the rains came, our time ran out and we were obliged to postpone a more thorough exploration underground until a future time.

A tremendous amount of work remains to be accomplished before the Cuenca enigma can be solved. First, an authenticity test must be run on the whole collection. So far, our results along this line reflect favourably toward Father Crespi. One of the oldest families in the town, and a very reliable source, reports: "Most of the collection is genuinely antique and original". At least we know the elephants and the gold tablets are ok, and the ceramics also appear to have received a clean bill of health. After the verification, how to account for the phenomenon? We have a theory and it is necessarily a wild one.

Huayna Capac, last of the Emperors of all the Incas, maintained a summer palace at Quenca until it was destroyed at the time of the Spanish Conquest. A cultured leader, he himself might have been archaeologically inclined in which case he most certainly would have hidden his valuable collections from the Conquistadores. These collections conceivably could have contained material originating in the legendary motherland of the ancient Mediterranean races whose origin is in itself a major dilemma even to this day.

THE SANTORIN HERESY

© Egerton Sykes, 1968.

In recent months there has been a veritable spate of articles in the press, programmes on radio, etc., about the relationship of Santorin, the island in the Eastern Mediterranean, to Atlantis.

The hare was started by Professor Angelos G. Galanoupoulos, the Seismologist, of Athens University, who in the course of his studies of the region, announced a few years ago that the Volcanic Island of Santorin had blown itself to bits in BC 1400, and in the process had destroyed the Minoan Civilisation, some 150 miles away, and that the fall out had caused the Plagues of Egypt, a normal event after such a disaster. To my mind the whole idea, which has been checked by some of the latest dating methods, appeared perfectly reasonable, particularly in its explanation for the sudden end of Knossos, which most historians had omitted to deal with.

However if we accept this date of BC 1400, plus or minus a year or so, we run into a most interesting series of historical and theological difficulties. It has been generally accepted that the ruler whose oppressive rule drove the Israelites out of Egypt was Rameses the 2nd (1301-1224), but this occurred exactly a century after the plagues. Also Rameses signed a Treaty with the Hittites defining the limit of the Egyptian Sphere of Influence as being the Nahr El Kalb or Dog River in Syria, which implies that at the time Palestine was under Egyptian rule.

If we accept BC 1400 when Amenhotep 3rd ruled (BC 1412-1376), we run into a fresh set of queries, in that Moses would have had to be born either in BC 1480, when Hatshepsut was still Queen, or in BC 1450, when Tuthmosis 3rd reigned (BC 1460-1440). In the first case, accepting that Moses was 80 when he led the Israelites out of bondage, he could have been either the son or the grandson of the Queen; in the second he could have been the son of Tuthmosis. The latter supposition seems the most likely in view of the similarity of name: "Moses" and "Tuthmosis".

To my mind there is no doubt that Moses was a member of the Egyptial Royal Family, the circumstances of his being found in a basket at the edge of the Nile are so much in keeping with the story of Osiris that one has no doubt that it was a form of ritual in current use. His undoubted position in the Court and the fact that he defied the then ruler go to confirm this. The revised dating fits in very well with the possibility that Moses was the father of Akhenaten, who was born about BC 1400 and reigned from BC 1373 to BC 1360. The point here is that in the whole of Egyptian history there were only two monotheists of importance: Moses and Akhenaton and the contiguity of dates implies some relationship between them. It would appear that these datings are more likely to be correct than the commonly assigned ones of BC 1331 for the birth of Moses and BC 1215 for the Exodus. The acceptance of these would mean that Moses had not yet been born at the time of the Plagues of Egypt and that the Exodus occurred at a time when Palestine was an Egyptian Sphere of Influence, which seems unlikely. The above digression is mainly intended to show what happens when a definite date can be assigned to some historical event with the consequent readjustment of a whole series of datings linked with it.

Up to this point I have been in full agreement with Professor Galanoupoulos, as his conclusions are based upon seismology, a science in which he is a recognised expert. It is when he ventures into that of Classical Archaeology, that I find myself obliged to disagree. The facts run as follows: In 1960 Professor Galanoupoulos published a paper "On the Origin of the Deluge of Deukalion and the Myth of Atlantis". This may have been a translation of an earlier paper in Greek which I have not yet seen. In it he affirmed that Santorin provided the basis for both the Deluge of Deukalion and the Sinking of Atlantis. He based his theory largely on the shape of Santorin as it now is and its resemblance to the circular canal system postulated by Plato. He also stated that Solon mis-read the Egyptian calendrical system and took the 9000 mentioned by Psonchis, Priest of Sais, as a number of years instead of the number of lunar months, which would have brought the time back to approximately BC 1400.

This idea was warmly espoused not only by the Greek Government and various Hellenistic authorities, but also by a number of people anxious to jump on the band waggon in undignified haste. The reason for the enthusiasm of the Greek Government of the time was simply because it seemed an appropriate move in the age long struggle between Greece and Turkey for domination of the Eastern Mediterranean, in that it gave conclusive evidence of Greek culture having preceded Turkish in the area. The Turkish riposte was to encourage several expeditions to Mount Ararat to look for the remains of the Ark of Noah. On the merits or demerits of this dispute there is nothing much to be said in favour of either side, one feels distressed that archaeology should have been brought into it.

However the Galanoupoulos case does not stand up to careful investigation of the extant source material. To begin with Solon (BC 638-558), who became dictator of Greece, had built up a large fortune by skilful trading in "Our Sea" before going into politics. It stands to reason that if he had been unable to understand the various calendrical systems of the region he would have gone bankrupt at an early stage in his career. On the occasion of his visit to Egypt, which occurred during a period when he was taking an enforced rest from politics, he was the guest of honour at the University of Sais - now a heap of rubble near Tanta in the Nile Delta - and it was his boastful utterances after a banquet that brought about the classical rebuke from the High Priest, who observed that the Greeks had no past history of which to boast, whilst he had in an adjoining chamber the records of all the High Priests who had preceded him, since the destruction of Atlantis 9000 years before.

On his return home Solon, who was also known as the wisest judge of all antiquity, wrote a poem "Atlantikos", the text of which came before Plato (BC 428-348) thanks to his friend Critias, who was descended from Solon and whose grandfather had spoken of the mss in his youth. Plato was the greatest philosopher of all antiquity, and while he obviously introduced elements of his outlook into all his dialogues, there is no reason to accuse him of deliberate inaccuracy, and his statement that Atlantis was beyond the Pillars of Hercules, is directly opposed to the Galanoupoulos theory.

The existence of Santorin, which has been known both as Thera and as Callist (or Kallisti), has always been a story of submarine upheavals, earthquakes, and volcanic eruptions. Until the time of the Voyage of Argo it was submerged, but at that time it suddenly emerged from the sea. The story goes that Euphemus of Taenarum, known as the "Swimmer", son of Poseidon, and brother in law of Hercules, who was a crew member of Argo, received from the Triton, the Priest King of the Tritonis culture, situated on a lake inland from Tunisia, a clod of earth in exchange for a bronze tripod. He was told that if he dropped this into the Chasm of Taenaron in Peleponnesus, he and his heirs would rule over Lybia. But owing to a mishap the precious cargo fell into the sea, and Calliste arose from the waves as a result. If we date the main Santorin disaster at BC 1400, the voyage of Argo should have taken place about BC 1800. It seems improbable that an uninhabitable island, at least for a century or two after its uprising from the waves, could have become a sea power able to dominate the Eastern Mediterranean between then and BC 1400, particularly if one bears in mind that it was never of any particular size. Both Pindar (BC 512-422) and Herodotus (BC 484-425) tell this story, which was obviously current in their day and of respectable antiquity.

There is also the interesting fact that none of the other peoples affected made any reference to this Atlantis. The Hebrews attacked every political or commercial or religious influence likely to interfere with them, as is shown by the pages of the Old Testament, in which there is no reference which fits. The Egyptians, who left behind interesting and highly inaccurate descriptions of their campaigns, never mention Atlantis as a possible factor. The Ugarit/Ras Shamra Scripts, originating from Syria, do not make any reference either, neither does Sanchuniathon, writing in BC 1193, when one would have imagined the story of the disaster would have been fresh in peoples minds. The Greek stories of the wars between the Gods and the Titans, although probably historical, do not fit into this context. The only other possible sources are the Minoans whose Linear A & B Scripts do not offer much historically, and the Hittites, whose records are still largely unknown. That is all. The Arabs did not arrive until much later and were not involved.

We now come to the fact that sherds and other artifacts have been found on Santorin. This is a valueless argument. There is not a single of the hundreds of small islands in the Mediterranean of which the same could not be said. They have all been inhabited by fishermen, who usually also went in for piracy when opportunities presented themselves. The relics which they left behind them can be duplicated anywhere and show nothing more than that. The Woods Hole Expedition headed by James M. Maver, which has now broken off relations with the Greek Government, does not seem to have found traces which could have been described as an important culture, say on the scale of Knossos, I should have been surprised if they had found anything more. I live on the rolling South Downs of England, and the whole area is dotted with remains of settlements of the various tribes who lived there before the Romans arrived in BC 55. Every time somebody turns up the soil, even for putting in telephone wires or digging a ditch, artifacts are discovered in profusion. But this does not imply anything more than the movements of small groups of people, and certainly not the site of any important culture.

There is also the question of the shape of Santorin which is stated to resemble that of the various systems of canals encircling the capital city. But this argument is a non starter. The history of Santorin is one of a continual succession of volcanic eruptions, earthquakes, and the like, that the shape of the island as it now is, would be unlikely to have any resemblance to that which it had before BC 1400. Its volcanic history is so interesting that it formed the subject of a book by Fouque nearly a century ago, since when there has been at least one major upheaval.

A civilisation based on Santorin would have been in a similar state to one situated in the crater bed of Vesuvius, with the impossibility of securing a sufficiently long period of stability to make the break through from barbarism to culture.

As a footnote to this I note that the Professor quotes Simeon Stylites as having written on Atlantis. Lucian in his "De Dea Syria" makes reference to the long series of flagpole sitter mystics who suddenly switched over to Christianity about 423 AD with the appearance of the first St. Simeon, author of several Epistles and a Confessio Fidei, none of which referred to Atlantis. Simeon Thaumastorites, who died in 596 AD, also wrote several Epistles, but does not refer to the subject. There was also the Presbyter of Archimandrita, who was struck by lightning whilst on his pillar, but who did not leave any writings. However my acquaintance with this period of early Christian History is, at best, only a casual one, so I may have missed out one of the important pieces of documentary evidence. The real point is that the Pillar Saints, inherited a tradition of seeking refuge from floods by climbing to great heights, and one of them might have left some written evidence behind.

Finally it should be noted that whilst the shock wave of the explosion, which resembled that of Krakatoa in 1883, was felt at Knossos and along the Greek coast line, the fall out drifted with the wind all down the valley of the Nile, possibly taken by the Khamseen. The Krakatoa explosion produced the most wonderful sunsets in England for several years afterwards owing to the dust in the atmosphere, I well remember being told of them as a child. The effects in the Nile Valley must have been remarkable. But all this does not make Solon an uneducated man, nor Plato a liar. Now that both Greece and Turkey are menaced by the Soviet take over of the Eastern Mediterranean, facilitated by the United Nations, Britain and the United States, perhaps the smoke clouds of political battle will dissipate and the question be looked into again with clearer vision.

E.S.

SOME RELEVANT DATES

BC	
1800	Calliste rises from the sea (Herodotus, Pindar).
1501	Queen Hatshepsut comes to Throne.
1479	Death of the Queen, Tuthmosis 3rd comes to Throne.
1450	Start of Tel el Amarna Letters.
1447	Death of Tuthmosis 3rd, ascension of Amenhotep 2nd.

1421	Death of Amenhotep 2nd, ascension of Tuthmosis 4th.
1412	Death of Tuthmosis 4th, ascension of Amenhotep 3rd.
1400	Santorin explosion, the Tel el Amarna Letters, Plagues of Egypt, End of Knossos and of Ugarit.
1376	Amenhotep 3rd dies, ascension of Akhenaton.
1362	Death of Akhenaton, ascension of Smenkhkaraf.
1360	Death of Smenkhkaraf, ascension of Tutankhamon.
1350	Death of Tutankhamon, ascension of Ai.
1345	Death of Ai, ascension of Horemheb.
1321	Death of Horemheb, ascension of Rameses 1st.
1320	Death of Rameses 1st, ascension of Seti 1st.
1301	Death of Seti 1st, ascension of Rameses 2nd (The Great).
1234	Death of Rameses.
186	Old Kamieni appears (Pliny).
AD	
19	Thera appears (Pliny).
1573	Another island appears.
1848	Eruptions spread over three months.

N.B. The Biblical dates for the birth of Moses and the Exodus are BC 1331 and BC 1290 which do not fit into the above context.

CLASSICAL SOURCES CONSULTED

Aelian, Aeschylus, Anacron, Apollodorus, Apollionius Rhodias.
Charon of Lampsacus, Critias.
Diodorus Silicus.
Ephorus.
Hanno, Hecateus of Abdera, Hellanicus, Herodotus, Hesiod, Homer, Hygenius.
Lucian.
Orphic Argonaut, Ovid.
Pherecydes of Leros, Pherecydes of Syros.
Pindar, Plato, Pliny.
Sanchuniathon, Solon.
Theophrastus of Lesbos, Theopompus.
Xenephon of Lampsacus.

Also

F. Fouque: Santorin et ses Eruptions, Paris, 1879.

ADDITIONAL NOTES ON THE MICHIGAN DRIFT ARTIFACTS

Ⓒ by Carmen D. Baggerly, 1968

One of the arguments by Dr. Greenman against third interglacial man in America, in the 1957 "American Antiquity", was that by that time good handaxes were being made in the Old World. If men had entered America during that interglacial, they would have brought them along. No Acheulian handaxes, no men. But the entry of man into America can just as well be placed an interglacial or two earlier, and there are tool types here that were being made in the Old World during those times. If a guess is made on the age of the Michigan drift tools, one might as well make it second interglacial for most, and it would probably be more accurate than to assume that all were made during the interstadial that preceded the Cary subage of the Wisconsin glaciation. (With a very few, possible exceptions they are certainly no later than that.) There are too many for an interstadial.

Also, I do not see why rolled artifacts from the surface in this locality should be no good, while the artifacts at Greenman's George Lake site on the raised beach at Lumsden Lake near Killarney, Ontario are accepted. They are so close to the surface that if the site was under cultivation they would be in the plough level. It was only the few rolled artifacts that could be tied to the time of formation of the beach. There were none in the five foot square dug in 1944. Everything was sharp and fresh and close to the surface. At the time Greenman thought it might be the oldest evidence for man in America, possibly 15,000 years old. It is probably as old as the site at Sheguiandah or perhaps a little older. Greenman's GL site might be one of the quarry sites of the Sheguiandah people. There is a vein of good quality quartzite close to the beach at Lumsden Lake from which material had been quarried. There is also some quartzite archaeological debris at the outlet of Lumsden Lake. The Michigan drift artifacts are older than the moraines that contain them, which are older than the raised beaches at Killarney.

Lee, on his visit here, claimed that objects like the drift artifacts were at Sheguiandah, which is doubtful. I looked at many thousands of broken quartzites ranging from thermal flakes to rubble beaches in the quartzite hills of the Manitoulin district of Ontario in 1944 and didn't see anything much like them. All of his material in the published accounts looks like postglacial archaeological debris found scattered in the Imlay valley of Michigan. An amateur archaeologist and geologist familiar with the glacial geology of the Great Lakes, thinks that some might have been caught in the Valders advance of the Wisconsin glaciation. A viewpoint with which Lee does not agree. The artifacts in till, as far as I can tell by descriptions and illustrations in publications, could be matched with naturally-broken stones from the glacial till of this region.

There would be more chance of getting the Michigan drift material accepted by some of those who now accept the Alabama pebble tools if a selection of certain naturally-broken and chipped stones was submitted for inspection. It would be in unworn condition which seems to be the first requirement.

But if Lee could only return to Sheguiandah, further astounding discoveries would be made and many of the North American archaeological problems, including that of the Michigan drift artifacts, would be solved. He said that he couldn't tell if they were artifacts or not unless he could get back to Sheguiandah where he could find out.

THE BAGGERLY GRAVELSTONES, IMLAY CHANNEL, MICHIGAN

A reply from Thomas E. Lee.

With regret I note that New World Antiquity, V.14, Nos. 11/12, p.122, 1967, has seen fit to publish some comments by Mr. Carmen Baggerly concerning my visit to his home. Since he has chosen to state, although inaccurately, an opinion formed concerning his collections.

I went to see Mr. Baggerly in good faith, hoping far more earnestly than he could ever guess that he would have something convincing to show me, either in his collections or in his sites. Before leaving, I asked if he had anything else to show me, and I departed under the impression that he had not.

He brought his collections into the house by the wheelbarrow load, literally. For many long hours I studied and handled thousands of stones, while listening to his arguments about them. The great quantities served only to emphasize what was evident from the first lot; namely, that by deliberate selection it was possible to collect a series of stones of similar shapes from the drift gravels. Like most professional archaeologists, I have seen this feat performed again and again by enthusiasts in different locales, each firmly convinced that he is right, and each well supplied with literature and illustrations to back up his claims. Particularly these people, perfectly sincere in their beliefs, like to show a thumb-hold or how well the stone fits the hand, although sometimes it is a "shoe-last" that is conjured up.

But, far more keenly aware than Mr. Baggerly that my opinion is only an opinion, I did not rule out the possibility of error on my part, and so proposed an examination of glacial tills elsewhere, containing similar quartzites. I know of only one such occurrence and have not been there in the intervening years. After what I thought was a more than fair examination of what he had to show, my opinion then was, and still is, that his "rolled artifacts" are nothing but gravelstones, but I would still be very happy to be proven wrong.

ANOTHER RICHMOND IN THE FIELD

A recent article by Dr. Manuel da Silva in the Philadelphia Enquirer, suggests that three of the inscriptions on Dighton Rock were put there by Miguel Corte Real, a famous Portuguese Explorer, who sailed from Lisbon in 1502 with three ships and was never heard of again. The author considers that they settled in Massachusetts, presumably because their ships were unable to put to sea again.

Such a journey would not predate Columbus and is well within the pattern of seagoing adventures of the time. The main point of interest lies in the fact that the date of the inscription on the Rock: 1511, precedes the arrival of the Pilgrim Fathers. This also is quite possible and does not, of itself, imply any change in the general pattern.

However I find myself mildly at issue with Da Silva over the Newport Tower, an odd structure, which has been attributed by some to the Vikings, a suggestion which implies that in Newport they experienced a sudden urge to build. That the tower was a portion of a larger structure seems reasonably certain, as also the fact that it was standing before the first settlers arrived. But I am disinclined to think that the Portuguese built it, or that an Icelandic Bishop did so, as in both cases the raising of such a structure would be out of keeping with the general pattern.

Doubtless, one day, when the Council of the City of Newport rescinds their resolution of November 9th, 1955, and permits the vicinity of the Tower to be investigated, we shall discover when it was built and by whom. The suggestion that Bishop Gnupsson built it in 1121 is possible but I cannot regard it with any great enthusiasm.

There is also the point that Dighton Rock has quite a number of graffiti on it in addition to those claimed for Corte Reale. The sorting out of these will undoubtedly be a long and complicated process. A photograph which I have before me at the moment shows traces of half a dozen or more different hands, many items being superimposed on earlier ones. One feels that a fresh series of photographs should be taken, with the aid of careful lighting, to see what previous investigators may have missed out. It should then be possible to have interesting sections blown up to natural size to facilitate identification.

For myself, provided the principle of Pre Columbian exploration is accepted, I have no particular favourites in the race as I consider that before Columbus all of the contestants had arrived on American shores at one time or another, in most cases in ignorance of the fact that other races had also attained the goal. The East Coast from Labrador to Key West represents a considerable stretch of land, with the possibility of simultaneous arrivals at widely separated points. Anybody having a ship who ventured out into the Atlantic and got caught up in the current was likely to land, willy nilly, in North America. This was not so much a matter of merit, as that they had no other option.

E.S.

THE VOYAGE OF THE ARGO

The note by Dr. Valentine on the journey of the Argo brings up several interesting points. I accept "Bosphorus" as meaning a strait and that it may well have applied to the Strait of Gibraltar.

Where I am rather unhappy is that the story should be taken as the literal account of one voyage instead of being the assembly of a series of accounts covering several journeys. The travels of Bran, O'Corra, Maeldune, Sindibad, are all fiction if one thinks in terms of journeys by a single person, but completely true if one takes them as being the stories of journeys taken by sailors at one time or another put together by some masterly compiler.

With this in mind I am content to leave Colchis at the Eastern end of the Black sea, which is where it seems to fit in best with the historical context as we know it. On the other hand there is no reason to doubt that the adventure seekers of these early times who had sought for Ultima Thule in the North and for the Cape of Incense in the South would also have gone across the Atlantic.

Dr. Valentine mentions that neither the Amazon nor the Orinoco fit into the picture. Can he suggest any river that would? One of the problems that arises is that the Amazon inland sea may well have been in existence at the time of the journey of the Argo. In that case a ship might sail as far as a cliff surrounded estuary.

The whole question hinges on the fact that the geography of the South American area was different in those times to what it is now, since the drying up of the inland sea the Amazon Delta has been enlarging itself continuously for centuries. We are all of us drawing water from the same well, agreement in principle is all that is needed, the details will all come out in the wash. Dr. Mertz thinks in terms of the Greek Epic Heroes; Dr. Valentine in those of local geography; I think in the terms of human diffusion.

E.S.

Reply to Dr. Henriette Mertz on "Colchis", New World Antiquity, July/August, 1967.

By J. Manson Valentine, Ph.D.

It was with great interest, that I read the recent article by Dr. Henriette Mertz, published in this Journal (July/August 1967), concerning a geographical interpretation of the voyage of the Argonauts as told by Apollonius Rhodius.

First, let me say that the evidence for the westerly direction of this epic journey is overwhelming and that further credence in an imaginary venture into the Black Sea, based on a "Bosporus" passage, is quite unfounded. Considering the original meaning of bosporus as connoting a narrows or ford, there is absolutely no need for a literal application that would rule out the western portal to the Mediterranean and hence an Atlantic-bound expedition. On that point I entirely agree with Dr. Mertz.

On the other hand legends of the nature of the Argo Epic, which involved the participation of actual deities, or of persons who became them, if we accept Euemerus, were already far distant in time from the narrators, when the geography not only of the Mediterranean but also of South America was markedly different from the present.

There seems little point in disputing the statement of Herodotus that Colchis was an Egyptian colony, although this does not help us in locating it. That there have been important links between S. America and Egypt is shown by the megaliths of the Masma Culture, in various forms of textiles, in the Cuenca collection, etc. That Colchis existed is a fact, but the Egyptian colonial periphy at the time was rather wide.

Shortly after the Argo cleared the Bosphorus it arrived at the island where Phineas the blind seer lived. But this is more likely to have been one of the Atlantic Islands (possibly the Azores. E.S.) which would have been nearer. Relics of Phoenician visits to Puerto Rico have yet to be discovered although I have heard of a cache in a cave containing a spirit boat with Egyptian type clay lamps. However the main evidence pointing to the Greater Antilles lies in the rich archaeological heritage left by the Arawaks with their widespread affinities.

I cannot accept the shy and innocuous, swamp dwelling, hoatzin as being the aggressive harpy, even apart from the fact that it is not known to have inhabited the West Indies, being restricted to the avifauna of the tropical lowlands of S. America.

As for the prophecy of Phineas, it would have been gravely misleading had it specified a direction from Puerto Rico that would have caused Jason to double back upon his course and travel northeastward into the Doldrums (Sargasso Sea) which he had been obliged to cross (floating islands, etc.) in order to reach the West Indies in the first place. Herein lies a nonconformity. Another is in the equating of the "second sea with windless days and nights, humid and listless", with the Caribbean which, as every traveler in these parts knows, is the home of the brisk southeast trades. Nor does the wide Windward Passage between Cuba and Hispaniola adequately fit the description of a narrow traverse between "clashing Rocks". Besides, this passage lies far to the west, hundreds of miles off course to anyone aiming at eastern South America from Puerto Rico.

Geographic names, especially of large features such as river systems, are endowed with an enduring persistence that can weather thousands of years of shifting culture patterns. By the same token, they can be reascribed to areas other than the original after a long hiatus following a cultural demise. As of now, no semantic linkage has been discovered associating any of Jason's fluviatile identifications, although it is obvious that they must have been names of long-standing even in his remote time. I refer to the rivers Acheron, Thermodon and Phasis which Dr. Mertz identifies with the Orinoco, Amazon and La Plata, respectively. In the case of the Amazon, according to H.T. Wilkins, the name originated in remote antiquity and may have been brought over by, or even originated with, the Carians, whose many offshoots embraced such divers stocks as the Berbers and the Baswues in the East and the Arawaka, Caraybas and Olmecs in the West. The term was collectively applied to those cultures which had preserved a matriachal system. It might have been linked with the word "Mazda" (as in Ahura Mazda), meaning light, and applied to the symbolic divinity presiding over women's affairs.

However neither the delta of the Orinoco nor that of the Amazon, have headlands, behind which a vessel might take shelter, they both run through expanses of low swampy country. Jason's passage to the Eastern Sea was unlikely to have been up the Manamo to its joining the main stream of the Orinoco, as the detour would have entailed some hundreds of inland passage.

Further on, the Argonauts cruised along a coast rich in iron mines. It is well known that the northeastern seaboard of Brazil fits this description and that Phoenician inscriptions have been discovered in some of the ancient mines. But similar inscriptions appear elsewhere in Brazil, notably at Rio and at several sites in the Amazon basin.

THE LENGTH OF A PACE

Dear Sykes,

With reference to your article in the Nov./Dec. issue of Antiquity regarding measuring, I do not think that 2.72 feet can be regarded as the length of a pace. This distance is a good hefty length. I consider that it is probably the length of the bare human foot of those times multiplied by three, i.e. a foot length of $10\frac{7}{8}$ inches. This is quite a reasonable length for a foot. You may recollect from your St. Omer Cadet days, that a ceremonial marching pace was 2.5 feet (30 inches). Incidentally, late Stone Age/early Iron Age man, was reputed to be rather short legged.

Yours sincerely, L.C. Suggars.

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Editor	Egerton Sykes
American Editor	Vernon Leslie
Canadian Associate Editor	Thomas E. Lee

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LOST OPPORTUNITIES

It is, perhaps, unfortunate that the great treasure house of early cultural remains lies just South of the border of the United States. But that does not constitute a valid excuse for neglecting a storehouse of artifacts and data which is solely available in North America.

This is made up by the petroglyphs and other relics left by members of the various involuntary migrants from Europe and Africa on the East Coast, and from China and Asia, on the West, who arrived during the three thousand years preceding the arrival of Columbus.

A century ago a number of rich individuals began to make collections of these but after their deaths the objects seem to have been dispersed. That their evaluation of what they had acquired was frequently wrong is unimportant, at the stage of archaeological knowledge a century ago many mistakes were made on all levels.

Nowadays the place of the rich man has been taken by wealthy Foundations whose directors tend to play for safety every time as with the case of the Viking explorers who were of no interest to anybody in particular until the Government had recognised them.

At the moment it may be said that two thirds of the pre Columbian relics have vanished and that the remainder will undoubtedly do so within ten to fifteen years unless somebody does something now.

What is immediately needed is money to photograph such artifacts as are still available, to micro film pictures of lost objects, as also of written and published evidence over the last century and a half. A certain amount of travelling would have to be done to collect the evidence but that would not really cost much. Housing the information requires a room, plus the use of the usual accessories such as cameras, slide and micro film projectors, etc., all of which can be borrowed. The exercise would take up to three years and would need an initial staff of three or four. By the turn of the century the records thus obtained and preserved might be the most valuable asset of American archaeology. Even here in England there is ample information to keep the team going for the first year.

E.S.

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On a personal note I would like to express appreciation of the many notes of congratulation which my wife and I received on the occasion of our Golden Wedding on the 9th March, last.

I would also mention that I was extremely gratified to hear that I had been elected a Fellow of the Explorers Club of New York in April last.

E.S.

DIFFUSION FROM THE EASTERN MEDITERRANEAN

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For a culture to diffuse with success several factors are necessary, including:

1. Power and wealth
2. Military strength
3. Ships, both naval and mercantile
4. Information as to the desired objectives
5. A driving urge to explore.

Of these Ancient Egypt had the first, was able to call on sufficient mercenaries for the second, could employ the ships and crews of the Phoenicians and other sea going nations for the third, had access to the best sources of information in the ancient world for the fourth, and, finally had a pressing need for incense, spices, precious woods, and all the other articles which a wealthy nation would need to import from abroad.

The power and wealth came from the existence of a stable form of government which had functioned for several thousand years and which was able to employ the services of experts in practically every field. Thanks to their aid it is hard to realise that the Egyptians armies were poor in quality and that their ships were unsuitable for any but riparian use.

In history, however, it is the end product alone which counts, and while the Egyptians may not have attained the level suggested by early diffusionists, their contribution to world culture over a period of nearly four thousand years was enormous.

Diffusion over land is a slow and tedious process which seldom produces any spectacular results. The reason for this is simply that human beings are not fundamentally mobile and the movement of large groups encumbered with all their worldly goods over long distances may well take centuries.

On the other hand, to merchants and traders, as also to colonising military and naval commanders, ships provided a relatively safe means of moving people and goods over wide stretches in short periods of time. It may be said that every real advance in human history has been made with the aid of ships rather than by any other means. Even now when fast aircraft will go from one side of the world to the other in a matter of hours, goods in bulk still have to go by sea.

This concept is not a new one, fifty years ago it was put forward by Elliot Grafton Smith in his "Ships as Evidence of the Migrations of Early Culture" published by Aberdeen University. Since then evidence of the potentialities of these early vessels and their commanders has been steadily piling up. The main difference is that while the Egyptians remain one of the main cultural sources of the period, they form but part of a general wave of culture spreading from the Eastern Mediterranean, in which the various sea going races: Etruscans, Hellenes, Minoans, Phoenicians, provided the vessels; while the Egyptians, as the richest country, provided much of the backing. Practically every nation in the region was involved in some manner in the process, much as European cultural ideas have been transmuted all over the world by the different States of Western Europe.

But Egypt was a rich country with an ever increasing need for myrrh, incense, precious woods, ivory, feathers, etc. As early as BC 2300 Mentuhatep IV, sent an expedition to Punt via the Red Sea, presumably in Phoenician ships, Another expedition went to Punt in the reign of Amenhotep ii, about

BC 2150. The largest of these expeditions was that sent by Queen Hatshespsut about BC 1494, which brought back: Throw Sticks, myrrh, ebony, ivory tusks, sweet smelling woods, eye paint, spices, dog headed apes, monkeys, leopard skins, gold rings (then used as money). Punt appears to have been a generic name for the area from Madagascar to Mozambique on the East Coast and Angola to Dakar on the West Coast. It could be reached by land, presumably across the desert via Lake Chad, or by sea from either the Red Sea or the Mediterranean. The Egyptians were certainly participating in gold mining operations around the Zambesi River about BC 2000, and with various interruptions this process carried on for a thousand years.

Taking all these facts into consideration it is possible to think in terms of a Near Eastern origin for numerous aspects of culture to be found overseas, where the religion came from Egypt and Greece; the architecture from both, possibly originating from even earlier sources; the commercial instincts from Phoenicia; the ability to sail ships and read the stars from the Pelasgians; reading and writing seem to have been transmitted by the Phoenicians as there is no trace of the use of Egyptian scripts anywhere outside Egypt, possibly because they were too sacred to be taught to foreigners.

The Egyptians sent numerous expeditions to Punt, which has usually been assumed to lie on the East Coast of Africa. But in BC 1494 one sent by Queen Hatshespsut to pick up a load of spices and precious woods called at the Altar of Incense. Some 850 years later Hanno, coasting down on the West side to Senegal also visited the Altar of Incense. This means that either the earlier expedition went round Africa or the later one did. I am inclined to think the Altar of Incense was on the West side and that the term Punt applied to the whole region from whence supplies were obtained. The time taken need not have been long. During the last war I sailed round Africa in a ship having a maximum speed of 8 knots, and judging from the time taken it would seem that a sailing ship could have done the entire trip round the Cape and back in less than a year.

When Hanno sailed down the West coast he was obviously reoccupying trading posts that had been in existence for a long time. Frobenius, writing about 1920 reported on the existence of an early culture in Nigeria which he considered to be relatively high, it appears to have been of local origin although it presumably was in contact with both the Egyptians and the Phoenicians.

In BC 600 Necho decided that Africa should be circumnavigated again and asked a Phoenician fleet to undertake the task. Details are in Herodotus. It is of interest to note that this same Pharaoh fought a war with the Hittites relying almost exclusively upon Greek mercenaries, the Myrmidons of Classical History.

In practice this type of loose partnership, with the Egyptians providing the money and the political backing, the Phoenicians manning the fleets, and the Hellenes fighting the wars, worked out extremely well. Thanks to it the Egyptians were able to maintain their hold upon world affairs right up to the time of the fall of Carthage, when the liquidation of their Phoenician friends put a stop to it.

The enforced break during the Hyksos occupation of Egypt, say BC 1750 to 1550, allowed the Greeks, Etruscans, Minoans and others to move into the areas vacated, but subsequent Dynasties restored the balance. Throughout the whole period Egyptian religious ideas as expressed by the numerous Chapels of Isis dotted all over the world, (known to modern generations as the Black Virgins) as of Chapels of Bast, the Cat Goddess, and other Egyptian Divinities; managing to substitute for the equivalent Goddesses of the Phoenicians and their cousin races. The extent of the field covered is shown by the discovery of Egyptian coins near Cairns in Queensland. This raises the query whether the "Throw Sticks" of BC 1494 might have been boomerangs.

The position of the early Hellenes appears to have been one of sharp competition with the Phoenicians. They produced an alternative to the worship of Isis in the Mystery Religion of Eleusis, Chapels of which were wide spread. The names of the Priestesses have come down to us mainly through the lists of Nymphs given by Apollodorus (BC 3rd Cent.) and Hesiod (BC 907), plus some of the early Priestess Queens mentioned by Homer such as Circe who lived on Aeaea, now Madeira; and Medea who is the heroine of the Argonautica.

H. Mertz in "Wine Dark Sea", Chicago, 1964, considers that Santa Maria, in the Azores was Ogygia, the Island of Calypso. The association with the Eleusinian Mysteries arises because they were founded by King Ogyges, with his daughter, or wife, Daria, as High Priestess. We do not know the name of the Goddess associated with these Mysteries, but she was most probably Aphrodite, in which case she can be equated with Astarte, Astoreth, Balkis, Ishtar, Isis Tanit (h). The language problem was not a serious one as early Phoenician and Greek must have been very similar and the Egyptian travellers understood both.

Once it is accepted that many of the events chronicled in the Odyssey and the Argonautica occurred outside the Pillars of Hercules, not only do many of the strange references drop into their proper places, but also some of the odd happenings in Greek Myth also become understandable. The stories date back to BC 1300 and earlier at a time when the Hellenes were just beginning to establish themselves in the Mediterranean and were seeking outlets where the sharp military and commercial competition was less than there.

As regards Santa Maria, Rendel Harris in "Maeldune", Cambridge, 1931, considered it as having housed a Temple of Bast and Sekhmet, the Cat Goddesses. This may have been taken over either by or from the Greeks, depending on the dating of Maeldune's visit. As Santa Maria is the first island from the West, it would be the last port of call for ships following the Gulf Stream Current back to Europe.

The Greek Classics abound in references to islands in the Atlantic. One which has never been properly sorted out is that of Merops. This was first heard of in a play by Thespis about BC 650, all trace of which has been lost. Then in BC 440 Euripides in his

"Phaeton" referred to: "Merope, Ruler of that land, which the rising sun first strikes with its golden rays, and which its swarthy neighbours call the radiant stable of the Moon and Sun". Later in BC 350, Theopompus of Chios wrote of a large island "where lived the warlike people of Machimos as also the race known as the Merops".

All this is unsatisfactory except on the assumption that the Merops lived on the mainland of America, or on Cuba or San Domingo, as none of the Atlantic islands are large enough to house the population of two million mentioned. The only really navigable rivers that come into question are the Amazon and the Mississippi, both of which show traces of incursions from the other side of the Atlantic. Diodorus, writing in BC 40, says: "For there lays out in the Ocean from Lybia, an island of considerable size, consisting of mountains surrounded by a level plain through which flow navigable rivers. It was reached by Phoenicians while exploring outside the Pillars of Hercules, who had been driven a number of days sail to the West by strong winds." The story is much the same, and may have originated from the same source. If it referred to Brazil, the crossing from Dakar, a Phoenician port of call to Natal, it would not have taken more than three weeks, given favourable weather conditions.

Whether the stories of white missionaries, such as Quetczalcoatl, are related to these voyages is a matter for speculation as the only religions in which the merchant adventurers were interested: Astarte, Ishtar, Isis, Tanith, or the Mysteries of Eleusis, would not have fitted into the picture as we see it. That Phoenicians and others from the Near East were among those who crossed the Atlantic is reasonably certain, but missionary zeal cannot really be attributed to any of them, with the possible exception of the Jewish tribes whose journeys form the background of the Mormon Faith. There are certain interesting possibilities in thish which will form the subject of another paper at a later date.

When we come to the question of the types of ships used on these expeditions we are in considerable difficulty. Most of the vessels depicted in the illustrations available are war galleys, and the small number of merchant craft represented appear to have been painted or drawn by people who had never seen a merchant vessel of any kind, as they are short in length, unmanageable in any kind of weather, and with an extremely limited capacity for goods. To my mind it is unlikely that any of them could have been used for these large scale expeditions, if only for the reason that their build rendered them helpless the moment the wind dropped.

Elliot Smith, writing in 1917, said "It seems quite certain, therefore, that it was the Egyptians who developed the art and craft of naval architecture". I feel that this is an over simplification of the problem, as to build sea going ships you require tall trees and this was something which Egypt has never had. The first real trees begin to appear in the North of Palestine, in Syria and Lebanon, and Turkey. The Nile vessels which the Egyptians used were restricted in both construction and design by the stunted nature of the timber available, and, in consequence could not have served as prototypes for ocean going craft which must have been built in Phoenician yards. Laird Clowes, writing in 1932, said "In Egypt timber has always been scarce, and no good wood has ever been grown locally".

The ships of the Punt expedition in BC 1500 had fifteen rowers on each side, a central mast, sails fore and aft, two large steering oars, and were about 100 feet long. In view of the tendency for craft of this type to break their backs, they had a hogging truss of thick rope which went from stern to bow, supported along the centre line by a series of thick struts or queen posts, tightened by a Spanish windlass, which served to keep the two ends of the ship up in the air, thus preventing any fracture. A Spanish Windlass usually consisted of a piece of wood thrust through the rope which was twisted in order to increase or slacken the tension as needed.

One is inclined to wonder whether, from patriotic motives, the craftsmen who designed these representations did not picture Nile river ships rather than the sea going vessels of the Phoenicians.

These ships with an overall length of 60 feet, resembling the rice boats on the Irriwaddy River of Burma, appear totally unsuitable for navigation on the open sea. Even the Punt ship, referred to above, was not more than half the length of a war galley with 40 oarsmen on each side. Callixenos of Rhodes has described a galley of 420 feet in length built for Ptolemy Philopater (BC 222-205), which appears to have been about the maximum.

The "Story of the Shipwrecked Sailor" dating from BC 1300, tells of a vessel 220 feet in length with a crew of 150, which was wrecked by a waterspout, while on a voyage to fetch a cargo of copper. However the hero was eventually saved by the intervention of a Serpent Queen - Priestess who procured a ship on which he came home. This portion of the story presumably occurred in Malaysia where copper and tin are available and where serpent worship was common among the Nagas and other tribes. There are many serpent stories coming from this region, where lived Sarpa Natha, the Vedic Lord of the Serpents. Among them are Bulukaya, Jamasp the Serpent Queen, and two of the adventures of Sindbad the Sailor. The story of Jamasp is only available in Burton's Arabian Nights.

The Himilco expedition which left at about the same time as that of Hanno, is only known through quotations by Festus Avenius, who lived a thousand years later (350 AD), whose texts came from Aratus (BC 315-245); and Dionysius Periegetes (45 AD). These say that after a voyage of four months the expedition reached a point "where the winds had no strength and the sea was still. In many places it was shallow and full of seaweed which impeded the passage of the ship". It is generally assumed that Himilco reached the Sargasso Sea, which was much larger in those days, and one is inclined to imagine that he simply followed the Gulf Stream and coasted around the Southern and Western edges, returning on the same current via the Northern side. How far

North he may have gone on the return trip is uncertain. The references to the Cassirites do not really fit in with any of the groups of Atlantic islands: Azores, West Indies, Canaries, etc., and either refer to Cornwall in Britain or to the American mainland. Probably Himilco was unwilling to divulge from where he was obtaining tin and lead. Syclax confirms this.

Another early traveller was Pythias of Massalia (Marseilles), whose Periplus describing travels to the Tamise-Scheldt and to Ultima Thule with a six month winter and summer, possibly Greenland, was written fifteen years before his death in BC 310. The Carthegenians appear to have been in the Azores in the 3rd Century BC, a hoard of coins of that date having been found on Corvo in 1749. Theophrastus of Lesbos (BC 372-287) refers to an island having navigable rivers, which certainly was not on the Azores, indicating that they reached Cuba or Haiti. Edrisi, writing in the 10th Century refers to no less than six Carthegenian equesterian statues in the Azores, of which one on Corvo was still extant in 1461.

It was to such religious centres on the Azores, the Canaries, Madeira and the West Indian Islands that the early Master Mariners from Ireland made their way. The beginnings of this movement over the high seas started a long time before Christianity began and continued until the Irish settlers were driven out by the Vikings about 1000 AD. The list is quite an impressive one, particularly when it is realised that those whose names are starred, managed to leave behind them written records of their visits:

*Baile an Sedil, received a cup compass
Barinte, the instructor of Brandan
*Brandan the Navigator
Brecan, the Son of Parthelon
Brighleith
*Connla
*Cormac the Navigator, received a cup compass
*Corra
*Cuchulain
Fion Barr, grandson of Niall of the Hostages

Labhraidh
*Laegaire MacCrimthian
MacErca
*Maeldune
Malo, Saint
Osin
*Tagd

Several of the heroes followed the example of Odysseus by making long stays on the islands of their choice. These included Baile an Sedil, Connla-who never returned-, Cormac, Cuchulain, Laegaire MacCrimthian-who also never returned-, and others. Brandan, Corra and Maeldune, whose tales are made up of sailors lore covering centuries, obviously had to return in triumph, to round off the tale, just as Sharazad has to be spared in the last chapter in order to round off the Arabian Nights. A point of interest is that the Priestesses were most probably of Grecian stock as no allusion is made in any of them to the dark skins of the Phoenicians and Egyptians.

The existence of a strong Irish tradition of overseas travel is shown by the fact that in 750 AD Archbishop Fergal (Virgile) of Solingus (Salzburg), was summoned to Rome to explain to Pope Zaccirius why he had taught the Irish about the antipodes. His explanations proved convincing and he returned back to his See. Fergal was a follower of the tradition of Eratosthenes of Cyrene, who lived from BC 276 to BC 196.

Crates of Mallus who lived in the 3rd Century BC, made a globe which stood in the Library at Pergamon, showing his theory of the four continental masses, in which Australia was the Antocei (antipodes) and America was Periocei. He had received this information from Levantine traders who had possessed a trading post at Saigon on the Mekong River as far back as BC 950, at which time they also opened up the Torres Straits between New Guinea and Australia, getting as far as Cairns. It is probable that Eratosthenes completed his studies during the lifetime of Crates and heard of his ideas. The Macrobian concept of world geography which was evolved from this in the 5th Century AD lasted until

Columbus.

Thales of Miletus (BC 640-548) and his disciple Anaximander between them made a map of the world based on data collected from sailors calling at Miletus. Hecateus, of Miletus (BC 550-476) a pupil of Anixamander, made a bronze copy of this map which Herodotus mentions as having been exhibited to the Spartans in BC 499, it having been removed to Pergamon by Areistides (fl BC 489), the inventor of the gnomon.

The mariner's compass, as we know it is erroneously assumed to have reached Europe from China. In actual fact the process was in the reverse direction for compasses were known to the ancient world a thousand years or more before the idea reached China.

One of the earliest instances of the use of a compass came when Hercules received a cup compass, actually a sliver of reed or wood in which was embedded a fragment of magnetic meteoric iron. Pisander, writing in BC 12, says that Hercules received this from Oceanus, other writers suggest Phoebus or Helios. Lucian in his "Parody of Jambulus" written about 160 AD, suggests that a sea shell was used rather than a cup. During his journey to Erythea, Hercules was stated to have used his cup compass every evening.

The magic cups received by several of the Irish epic master mariners, referred to elsewhere, from the reigning Queen-Priestess of the island that they visited, in reality a Priestess of Isis or of the Eleusina Mysteries, appear to have been of this nature. Any form of liquid would suit although an oily substance might give better results. That these must have been very precious is shown by the small number of persons to receive them.

In the Talmud and other works reference is made to cup compasses under the name of "Kalamitah" from the word for the piece of reed with the aid of which the needle floated. Herodotus mentions that a Hypoborean magician named Abaris, the son of Seuthes, carried with him on his journeys a guiding arrow which he had received from Pythagoras. The Egyptians knew lodestone as "Haroeri's Bone", after a son of Osiris; iron was known as "Typhon's Bone". This may explain why Deucalion, a Greek

Flood Hero, threw behind him the "Bones of the Earth" for guidance before setting off on a journey.

According to Sanchuniathon, writing in BC 1193, Ouranos, the discoverer of meteroric iron, set up Baytulia or indicating stones made of it. There was a supply of lodestone in Arabia arising from the meteor craters at Wabar, which may have been Murekeyn, the magic mountain of lodestone described in the Story of the Third Royal Mendicant in the Arabian Nights. The original Wabar meteor must have been of considerable size, probably the sole remaining chunk has ended up as the Holy Stone of Mecca. A good source on this is Edrisi, who wrote about 1050 AD, also Peschel and So. Sung.

Although there was Breidablikk the lodestone mountain of Norway, probably an astrobleme which is now worked out, the Vikings appear to have used Sun Stones rather than compasses. These stones, usually corderite, described in New World Antiquity for July/August, 1967, when held flat in the palm of the hand, changed colour when pointed in the direction of the sun, even if invisible owing to weather conditions. In the Heimskringla it is recorded that King Olaf the Good, was offered the use of a Sun Stone by Sigurd in order to find his direction. Provided that the navigator had some rough and ready means of knowing the time, the Sun Stone would be nearly as good as a compass.

There was a reputed Lodestone Mountain in the East Indies, while Canigou, near Perpignan, scene of many disastrous air crashes, may possibly be a mountain of a similar nature.

Perhaps the most interesting problem is what kind of ships did the Phoenicians and their cousins use on these long journeys. Here we find ourselves extremely short of adequate information. The war galleys of the Mediterranean are well known to us both by pictured representations as by descriptions in stories of sea battles. They were graceful ships, single deckers, biremes or double deckers, and trieres or three deckers, manned by rowers and equipped with masts and sails for use when not actually fighting.

They ranged in length between 200 feet and 420 feet, this latter being the size of a ship built for Ptolemy Philopater, with a crew of several thousand oarsmen. It is difficult to see how they were accommodated and how the many banks of oarsmen managed to avoid fouling each other. One presumes that it was only intended to be in action for a very short while before returning to port, problems of accommodation and food not entering into the question.

However when one compares these giants with the Egyptian river boats of which models or pictures have come down to us, the disparity is extremely marked. They averaged 90 to 100 feet in length, and by their build were obviously unsuitable for operating on the high seas as cargo vessels or even for the armed explorations of the period. Hanno sailed with 60 ships, each manned by 50 rowers, and carrying 30,000 troops and staff. This means that each vessel had a compliment of 500 which would have been impossible on the type of merchant vessels depicted in the Egyptian records, even the ship used for the Punt expedition of BC 1400 seems far too small.

One is inclined to think that these forays were conducted in large galleys which depended mainly upon sails for propulsion, using their 50 oarsmen to get them out of difficulties when the wind dropped, or for inshore work. This represents a type of vessel of which we have neither picture nor description. One is obliged to postulate its existence because with anything else the achievements known to history could never have occurred. Unfortunately neither Elliot Smith nor Clowes nor Ronciere dealt with this aspect of the problem.

As a matter of interest the speeds attained by war galleys were astonishing. Thucidyces mentions a distance of 168 miles in 24 hours, while Xenephon gives a speed of 9 miles an hour for an even longer period of time. For comparison the Oxford Cambridge University Boat Race never exceeded 11 miles an hour before the invention of sliding seats and keelless boats.

Queries have been raised as to the journeys to Saigon or the Torres Straits, but in actual fact there would never have been a necessity for being out of sight of land for more than a few hours at any time. No long ocean crossing of any kind was involved.

When we come to Atlantic crossings there were three routes available: Island hopping via Iceland, Greenland, Baffin Land, Labrador, etc.; the Gulf Stream which meant sitting for some forty days in a ship while the current took it in a clockwise route to the Caribbean Islands and the Coast of Florida, with a return passing the Azores; finally the short Ocean route from Dakar to Natal which would lead to the reaches of the Amazon. The first was the most hazardous owing to bad weather conditions; the second was the easiest but most tedious; the third was the quickest but one calling for most skill in navigation. The Mediterranean seamen usually went on the Gulf Stream route, the Vikings via Iceland, and the Berbers direct to Brazil.

The galley ships, which represent a logical development from the canoe, was to my mind far more suitable for merchant adventurers in the early days of navigation than the high pooped vessels employed by Columbus and his forerunners. This was simply because the combination of sails and oars, either or both of which could be used at will, was far better than having a vessel which could not be moved when becalmed. South Sea Islanders have been known to make journeys of thousands of miles across open sea in canoes, which were less exposed to damage by weather conditions than many of the larger ships employed by the West. One supposes that the reason for the dropping of the galley type of ship was simply that it was no longer possible to find sailors with the necessary physique.

The spread of Mediterranean ideas of shipbuilding to Northern Europe, made a great difference to the vast exploratory and commercial expansion which occurred from the seventh century onwards, and was due to the Varangerians who, having moved Southwards from Novgorod from 375 AD onwards, eventually reached the Black Sea, where many Norsemen served either as captives or as mercenaries in the fleets of the opposing armies, a process culminating in the Varangerian Guard of the

Byzantine Emperors, which under Harold Hadraga in 1032 AD literally hacked its way to Jerusalem and back. Harold who was 7 feet tall and could cut a horse in half with one stroke, became King of Norway. He left Constantinople with his own ships and sailed homewards through the Mediterranean and the English Channel in 1046 AD, having murdered all his opponents, including the Emperor.

Harold and his predecessors brought back with them some of the shipbuilding ideas of the region and applied them to the building of their Long Ships, with which they were to reach Iceland in 860 AD and to sight America in 985 AD, fifteen years before Leif Ericsson actually landed there. However the Vikings managed to introduce two vital improvements over the building methods of the Middle Seas. The first was the overlapping of planks (clincher build) instead of laying them end to end (caravel build), something which made an immense difference in dealing with Northern weather conditions. The second was to make both fore and aft of similar design with high stem and stern posts, a great advantage when exposed to Atlantic storms. They were helped in this by ample supplies of excellent timber.

An interesting piece of evidence which has come down to us is the Periplus of the Erythean Sea, compiled about 50 AD and covering the routes as far as the China Coasts. The edition which I have, edited by W.H. Schoff and published in New York in 1912, indicates that it had been compiled on the basis of information supplied by sailors trading in the Indian Ocean and that it was probably the latest edition of a species of Michelin Guide for Sea Captains which had been in use over a long period of time. It omits any reference to Saigon as a port which may indicate that at that time it was in non friendly hands. The capacity of the ships used is shown by the fact that a return journey from the Red Sea to Chinese ports was over twelve thousand miles, over double the return journey from Europe to North America. The great point to remember here is that this information constituted a valued trade secret.

This short paper has concentrated on the wave of mercantile and military diffusion which spread by sea from the Mediterranean in the two millennia preceding our Era. That these movements occurred can no longer be disputed, but so far we have very little idea of the effects of this interchange of goods and ideas particularly at the receiving end. In North America, for example, the total number of artifacts belonging to transatlantic travellers during this period is not known to exceed a hundred. In general no effort is being made to preserve them and within a few years the majority will have been bulldozed out of existence and used as road material. It is therefore of the greatest importance that while they still exist efforts should be made to photograph, catalogue and publish them, if only for the needs of future generations who will bitterly decry the stupid neglect of members of the present generation. These artifacts are part of the North American national heritage and should not be neglected.

BOOKS

ART OF THE WORLD SERIES: North America by Wolfgang Haberland, English translation by Wayne Dynes. London 1968. Price 63/-. Format 18 x 23½ cm. Originally published in Baden Baden in 1964.

To the reader this book has several marked advantages over the average art book in that it is of a size that does not require a large table in order to read it while the fact that it is not printed on glossy paper but instead has all the many coloured plates as separate items each attached to a page shows a return to pre-war standards of book printing which is most welcome.

A general survey of North American aboriginal art has long been lacking, such publications as there are tend to use the majority of the space at their disposal for Mexico and Central America and to have but a few pages for the United States and Canada. The only criticism one might offer here is that the appendix on the West Indies is too short and inadequate.

The text shows careful research work and by its very emphasis on differences between various groups shows their marked dependence on each other. For example the excellent drawings of objects from the Southern Cult Complex force the reader to realise that to a Mexican this could equally well be called Northern Cult Complex.

Again the various coloured plates of pipes coming from all parts of the area make one wonder what was the precise connecting link between these various cultures and how the ritual habit of smoking managed to become so widely spread. This shows that the manner in which the work has been drawn up tends to encourage speculative thought.

The line maps are most helpful, they are clearly drawn with the minimum of obtrusive lettering. In the same manner the various chronological tables have been drawn up with care and are free from complications.

Finally a particular word of praise for the remarkably good photograph of a North West Coast painted mask from the Natural History Museum at Oldenburg.

ART OF THE ANCIENTS: GREEKS, ETRUSCANS AND ROMANS

ANDRE EMMERICH GALLERY, NEW YORK, 1968

It is always a matter of interest to know where the Emmerich Galleries manage to procure such remarkable works of ancient art for its exhibitions and sales.

The set of six griffin cauldron heads from the Erbach collection is truly remarkable not only for the excellent condition of the heads themselves but also for the size of the set, which cannot be matched anywhere. That they are Etruscan must be accepted.

The bronze krater with handles composed of double headed snakes is unusual and should be snapped up by a museum. The Attic red-figured stamnos showing one side Dionysos accompanied by two maenads is really outstanding.

The catalogue is accompanied by full descriptive notes on every item, obviously compiled by somebody who not only knows his subject but enjoys writing about it. E.S.

An introduction to the Study of the Moon by Zdenek Kopal.

D. Reidel, Dordrecht, Holland, 1966.

This volume forms one of a series on Aerophysics and Space

Sciences, edited by some of the most eminent authorities in the field. Professor Kopal heads the Department of Astronomy at Manchester University.

This work might, perhaps, be described as a basic introduction to Lunar archaeology, containing practically everything which we humans have managed to discover about surface conditions on the Moon, together with data on associated phenomena.

If one bears in mind that man will actually land on the surface of the Moon within the next two years, the importance of having a reliable handbook summarising all the information available cannot be minimised.

Admittedly it is doubtful whether the problems of archaeology, anthropology, and even ethnography have not so far aroused any marked degree of enthusiasm in NASA, but as against that it is fairly certain that the Soviets are alive to the necessity of being adequately trained to deal with such matters when they arise.

The same standard will apply to Mars which is the only planetary body that man looks like being able to attain within the next twenty years. Here there is always a chance that Mars may have been inhabited before its water and air supplies gave out. The prospect should offer magnificent opportunities for the up and coming generation of archaeological workers.

John Donne observed that "No man is an island". The same may be said of academic disciplines which tend to become hopelessly intermingled when new advances are made. For this reason I consider that a work such as this, which will become a basic need for astronauts, may well also fill the same need for archaeologists.

E.S.

BOOKS ON DIFFUSION All the works of Elliot Smith, W.J. Perry, and the other great writers of the diffusionist school of fifty years ago are out of print and unobtainable with one exception: Dr. Rendel Harris, formerly Professor of Greek and Palaeography at John Hopkins, Professor of Theology at Harverford College, and, later, Professor of Applied Theology at Birmingham University, England.

Rendel Harris wrote a series of monographs on Diffusion of which some 55 are still in print, at prices ranging between 65 Cents and a dollar. Most of these are in small batches of half a dozen or so and those interested in the subject should take advantage of the possibility which will not be available much longer.

A paper on Rendel Harris and Diffusion is also available at 50 Cents.

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GEOGRAPHICAL DISPLACEMENT

A recent article in the Figaro (15th June) signed by Robert Clarke, gave a map showing the hypothetical position of South America and Africa in the past, showing that Africa then was adjacent to South America and stating that since then the entire African continent has moved Eastwards to its present position.

To my mind the arguments are fallacious. Africa is at the present time tending to split up along the line of the Great Rift and is slowly moving to the West, i.e. in the opposite direction to that postulated. What does appear to have happened is that the whole of South America once lay at a 90 degree angle to its present position adjacent to the African coast, allowing for the fact that about a million square miles have been added to it in the building up of the Amazon Delta since then. As far as the Atlantic Ocean is concerned the tendency is for a slow movement towards the West and not in the reverse direction.

The proof of this nearness of Africa and S America lies in the discovery of remains of a fossil salamander called the labryinthodonte which had its habitat on freshwater marshland and could not have crossed the Atlantic as it now exists. However there are at least three alternative explanations which might have produced the same result.

The first is Gondwana which stretched from Africa to Australia. Its disappearance may had occurred at the time of the great meteor strike 700,000 years ago which according to the Smithsonian caused the alteration of the terrestrial magnetic field over a wide area.

The second is Fugea, a continent which included Melanasia, Australia and Tierra del Fuego, according to Dr. Albert Smith of the Smithsonian in 1955 and Prof. C.G.G. van Steenis in 1963.

The third is Atlantis which has been postulated as the Atlantic land bridge, explaining many other movements of plants, insects and animals.

For all I know there are other current theories which may explain matters equally well. The one advantage of the three above is that they are not mutually contradictory, in that any one can stand alone or in the presence of the other two.

What is becoming obvious is that it is no longer possible to think in terms of history, or anthropology/ethnology, or geology. The frontiers are becoming blurred to an extent that it is no longer possible to say where one begins or another ends.

For example take occupation sites in Mezo America which start about BC 300. Is that where anthropology ends and history begins? Or does history only begin with the Spanish Conquest? In Egypt does history begin with the 1st Dynasty or with the French Conquest? In the Near East does the history of Israel begin with Abraham watching the destruction of Sodom in BC 1799 or only with the birth of Our Lord?

In sober fact there is no point where a dividing line can be drawn between history, anthropology, palaeontology and even geology. I ask this because in certain regions the endeavour to separate these disciplines has resulted in the complete and absolute neglect of many important fields of study simply because nobody would take the decision as to who should do them. The gross and unthinking neglect of pre Columbian artifacts of external origin is a typical case in point.

I have before me at the moment a chart published by the London Natural History Museum showing "Cultural Traditions of Early Man" in which no reference is made to either the Americas or Australia. While this may be deeply satisfying to the isolationists it is a source of distress to others.

E.S.

A REPLY TO DR. VALENTINE FROM HENRIETTE MERTZ, LL.D.

No one could appreciate more than I comments of Dr. J. Manson Valentine as noted in his Reply published in New World Antiquity, Vol. 15, January/February, 1968, and particularly his acceptance of my conclusion citing evidence for bringing the ship ARGO into the Atlantic. In the epic of Apollonius Rhodius, which I was following, three separate descriptions of geographical phenomena, unique to the Atlantic or Western Hemisphere, are recorded only one of which I pointed out - two other highly significant ones exist. My article, as published, was originally presented as a paper before the XXXVII International Congress of Americanists at Mar del Plata, Argentina, September, 1966 and is barely a skeleton outline of a portion of a manuscript under course of preparation.

Some forty or more ancient writings, treating of exploration or geographical matters, primarily from Greek but including several from Latin, all in translation, have been under study for some twenty years. Out of this welter of material only two poems could be traced and mapped in the sequence in which they had been set down - the ODYSSEY of Homer and the ARGONAUTICA of Apollonius Rhodius - the remainder set forth interesting points of geography but did not lend themselves to cartography. Minor errors in geography in these two epics occurred but were not unsurmountable - the amazing thing being that any recognizable sequence at all existed after suffering some 3000 years of improper editing, distortion and misinterpretation.

In examining any written instrument, he who examines it must stay within the four corners of that document to determine precisely what was set forth by the original author - not what someone else thought about it or decided what it should have been. Opinions of others frequently perpetuate errors impossible to eradicate later and likewise carry little weight - the instrument itself must speak and be examined de novo. It further must be examined in the light of the period of time when the incident which it describes occurred - not of some earlier or later time. The period of time when these two voyages presumably were made being roughly from 1300 B.C. to 1100 B.C.

With these imposed restrictions, comments raised by Dr. Valentine give one considerable pause. He first wishes us to accept Euhermerus who wrote about certain deities far distant in time from that of the voyage of the ARGO - having nothing whatsoever to do with Jason, the ARGO or factual geography with which we were concerned. Dr. Valentine stated that legends of the nature of the Argo Epic involved participation of actual deities, or persons, who became them, who were already far distant in time from the narrators, when the geography not only of the Mediterranean but also of South America was markedly different from the present. First, we do have an unknown narrator of the thirteenth century B.C., who was as nearly contemporaneous as would be possible and not distant in time, who identified Jason as Lord or Master of the ARGO - an historical person as distinguished from myth. Being contemporaneous, this early writing removes Jason from any theoretical category of deities - legendary or otherwise. We are not of the opinion that all members of the crew, as listed by Apollonius Rhodius, were either human beings or deities - regardless of Euhemerus. In examining the record of one single instrument, only insofar as it applied to geographical phenomena, regardless of persons, this writer elected to follow that of Apollonius Rhodius, and no other - excluding Pindar, Apollodorus, Diodorus Siculus, Hesiod and Valerius Flaccus, all of whom wrote versions of the Argonaut story. Each version is different and no version agrees on a list of identical crew members. For this and other reasons, and to avoid confusion, one document only was considered and that document solely from one standpoint - to see whether or not possibility existed that the geography could be traced and in the sequence in which it had been recorded anciently. Euhemerus is irrelevant and beside the point.

Dr. Valentine asserts that "the geography not only of the Mediterranean but also of South America was markedly different from the present." It is difficult to determine what basis he has for so stating for no change in geography has taken place in the Mediterranean or South America, such as he implies, within the past 10,000 years. Certainly not within the period under examination i.e. 1300 - 1100 B.C. Any elemental geology or any chart of glaciation would set him aright instanter should he consult it. Our last glacier receded some 10,000 years ago, having come no further south than the

Ohio River - the second würm in Europe came no further south than the 50° N. latitude - considerably north of the Danube while the third and fourth würms restricted themselves to the far north of Europe. In neither case, Mediterranean nor South America, was geographical contour of land masses affected or even touched. We are presently living in an interglacial period known as Holocene which started some 10,000 years ago. The great changes in contour occurred in the Miocene roughly from 11 million to 25 million years ago when tremendous forces lifted up mountains such as our Rockies. Various changes in land formation have occurred during the intervening periods between Miocene and Holocene but none within the past 10,000 years. Therefore, Dr. Valentine's statement that "geography not only of the Mediterranean but also of South America was markedly different from the present" appears to be without foundation in fact. If Dr. Valentine has some other source of evidence to support his allegation, we would welcome knowing of it.

We also take issue with various other assertions which we are at a loss to understand. Dr. Valentine's conceptions of geography and the Sargasso Sea as well as the Caribbean being the "second sea" are puzzling and apparently do not stem from any personal experience with navigation. He relies for his authority on that vast mythical multitude normally classified as "every traveller in these parts knows." This writer having come through the Windward Passage scores of times on Grace Liners, United Fruit "banana boats", freighters and a tramp and some twenty journeys south of the border including a five day crossing of the Andes, on foot, with thirteen Chuncho Indians, down the eastern slope on balsa, a month in a dugout down the Lobo, Shamboyacu, Aguaytia and Down the Ucayali on a small river craft and on down the Amazon from Iquitos to Belem plus two months recently in the Titicaca basin could be lumped with that great congregation of "every traveller knows." Out of this experience, on coming through the Windward Passage some 30 years ago, with a 17 year old nephew, the almost instant climatic change from raw, cold Atlantic to warm sticky atmosphere of the Caribbean, total lack of any wind and the high humidity - such as described by Apollonius Rhodius - left us also listless and without energy. Due to that humid sweaty atmosphere, my nephew required four white shirts and two pair of white flannel trousers a day and all that I can say is that if Dr. Valentine had been as unprepared as I was to pay for that unexpected sizeable daily laundry bill on board ship, he would not soon forget the climatic change on coming into that second sea.

Note by the Editor

I think I should make it clear that this dispute between Dr. Mertz and Dr. Valentine, is rather a mild disagreement between allies than an embittered warfare between enemies. All three of us, in differing degrees, share the belief in pre Columbian voyages from different parts of the world to the Americas.

Where we tend to differ is in the emphasis which should be laid on the part played by one particular culture as opposed to another one. Dr. Mertz supports the Greek epic heroes and explorers, while both Dr. Valentine and I are not so certain. But in reality this is a storm in a tea cup as we all three are happy to accept a Mediterranean origin for these heroic seamen of the past.

On the vexed question of geography, Ur of the Chaldees used to be a seaport but is now several hundred miles inland on the dusty plain built up by the accumulation of material brought down by the Tigris and the Euphrates. In this manner there has been a gradual alteration of the geography of the district which has passed almost unnoticed by successive generations.

Again in Raftery's "Prehistoric Ireland" published in 1951, there is a map showing that at some recent date (he suggests BC 7000, but I think it was probable between BC 5000 and BC 3500) Spain and Africa were joined, as were Italy and Tunisia; the Bosphorus was dry land, as were the Greek Islands; while Britain and Ireland formed part of the European mainland. Such geographic changes are inevitable and it stands to reason that the profile of the Amazon Delta must also have changed over the centuries, the tens of millions of tons of soil washed down must have gone somewhere. But the Amazon River still remains, just as do the Tigris and the Euphrates, the basic facts of the situation do not alter although the external appearance may vary.

In her argument for the existence of Colchis in South America, Dr. Mertz is supported by Professor Falb of Vienna and by Professor Fink of the same city. Professor Falb's thesis was written nearly a century ago but the arguments are probably still valid. Of his colleague Professor Fink I know nothing except at third or fourth hand.

E.S.

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: MSS on linguistics. In Vienna
National Library, 1947.

VOTAN THE THIRD - THE SNAKE PRIEST - A PHOENICIAN SEA CAPTAIN?

According to Brasseur a certain Bishop Zumaguerra, in 1691, burnt a large quantity of Quiche material including a mss entitled "Proof that I am a Snake" by Votan the 3rd. This told of a voyage to the Court of King Solomon where the writer described to him the wonders of the New World: men, animals, plants, precious metals, etc., but refused to give any details of the route to be followed.

Although Votan was one of the titular gods of the Popul Vuh this seems to have been a case of a High Priest of the Snake Clan using the name of the God. However his insistence on proving that he was a Snake indicates that he was not of local origin, in which case he may well have been one of the Captains of Hiram's fleet working under the orders of King Solomon who had visited Central America and who intended to return there to settle down, but was unwilling to divulge how to get there for fear of pursuit.

Another version of the story occurs in "History of the Wonders of the Universe", possibly the work of an early Arab scribe. At the moment I cannot trace it, perhaps some reader can help. I thought it might have been Masoudi but his work was called: "Field of Gold-Mines of Gems".

Some confirmation of this idea is given by H.T. Wilkins, who tells of a mss burnt by Nunez de la Vega containing the story of an old man, a survivor of the deluge, whose great grandson, named Votan, saw the erection of the Tower of Babel. This might indicate a steady series of visits from Phoenicia to America.

The following source literature has been consulted: L. Spence : Popul Vuh; Max Muller : Popul Vuh; R.G. Moreley : Popul Vuh; Blavatsky : Isis Unveiled; E. Sykes : Dictionary Non Classical Myth; MSS by G.I. Bryant. Brasseur de Bourbourg's "Popul Vuh" in the preface to which the story occurs, may be consulted in the larger libraries, such as the British Museum, Library of Congress, etc.

THE PROBLEM OF THE BAGGERLEY STONES

The dispute between Carmen Baggerley and Thomas Lee is one which finds its counterpart all over the world. It boils down simply to whether and at what point one is prepared to accept artifacts as having been worked by man.

Considerable bitterness arises in the clashes between the two points of view, I have a friend in Britain who has been involved in exactly the same dispute with the authorities here with similar results.

My sympathies are on the side of Mr. Baggerley, in that I feel that man evolved as a thinking being some twenty million years ago, even though at the time his vocabulary probably consisted of nothing more than grunts of differing pitch, nevertheless he had begun to make and use tools and, as such, was a man.

However I must also admit that it is extremely difficult to determine with accuracy whether these artifacts are man made and I can well appreciate the reluctance of the expert to commit himself. But this does not imply a lack of good faith on either side, as in many other things it is possible for two people to hold opposite opinions and still to remain honest men and good citizens.

I do feel that the habit of claiming natural erosion for anything which does not fit into the accepted pattern is one that can be carried so far as to surpass the possibilities. The other day in Paris I dined with Daniel Ruzo, the discoverer of the Masma Culture. He showed me a long series of photographs taken in the last few months of a series of thirty or forty carvings of prehistoric and other animals on stanting rocks, in a site in Europe. Now I am prepared to accept one or two cases where natural erosion might produce rocks having the appearance of beasts, but when one comes across a whole menagerie of them, the odds against their having been created by natural forces become astronomical, running into millions to one against. As I shall have occasion to refer again to these artifacts in a future issue I will confine myself to saying that for the moment we have no idea who did them, for what purpose they were made, or when it happened, except that it seems to have been before BC 10,000. No connection with any other culture has as yet been traced. An interesting question which will no doubt draw the fires of heaven from many people.

E.S.

Some notes by Carmen Baggerley

In the second half of the nineteenth century, after hand axes were recognized as artifacts in Europe and as evidence of an earlier stage of human culture than that of the polished stone tools, search was made in America for similar artifacts. Since good handaxes were not found in convincing quantities and situations, it was assumed there was no period in America corresponding to that of the Lower Palaeolithic in the Old World, an assumption which still stands. If such a period is established for America at this late date, it should be obvious that most evidence will be in the form of stone tools of a kind overlooked, discarded, or ignored by most professionals to say nothing of the amateurs. It helps when studying the differences between crude, unhafted stone tools and naturally-broken stones to try them in the hand. If they do not fit the right hand then try the left. It also helps to make and use stone tools, as I have often done, either through necessity or as an experiment.

Recently I heard from a man in Oregon. He wrote that Louis Brennan had said that his position in regard to some controversial stone objects was the same as mine. We exchanged photographs and notes. The Oregon material is in no way like mine. The closest resemblance to some of the objects in his photos, of anything I have, is in a natural sandstone concretion.

Included in the papers sent to me by the Oregonian was a reprint from American Antiquity, Vol. 29, No. 1, 1963. The title: "Inferences on the Use Position of San Dieguito Percussion-flaked Artifacts" by E. Creutz and J. Moriarty. The abstract: "Thirty-one percussion-shaped tools from the San Dieguito complex of the southern California middens have been examined. On 30 of these tools facets apparently corresponding to several regions of the thumb and the first two fingers of the right hand have been identified, as well as clearance and rake angles at the cutting edges corresponding closely to those on modern cutting tools. One of the tools seems to have been intended for left-handed usage. The evidence indicates that these tools were shaped with great precision to fit the hand and to have efficient cutting edges. Statistics on the length of the facets and the mass and height of the tools, as well as on the angles of the working edges, are given."

The 14 artifacts illustrated look similar to some in my collection. The Michigan tools, other than those that could be used in either hand, seem to be evenly divided between those faceted for the right hand and those for the left. If an accurate count should show an even division, it could be used as an argument against any of them being artifacts. But if proven that they are artifacts, it could be taken to mean that the people who used them were ambidextrous. Some double-bitted tools fit the right hand when one bit is in use, the left hand for the other. When in use bits were directed diagonally toward the user.

Since pebble tools are coming to light in large numbers in the South, it is reasonable to assume that similar tools could be found in the glacial drift of the North. The problem would be to separate them from the naturally-broken stones, which can never be done with exactness. But, since before that, I had got the idea there were many stone tools in the glacial drift of this region, it was logical to assume that, if they were really artifacts, they would be found in greater concentrations on sites in the non-glaciated regions to the south, as I often mentioned in letters. They are now being noticed in the southern states and published.

Earlier, Renaud had published on the artifacts found in Wyoming like those of the early periods of the Old World. In the discussion of them in the 3rd edition of Wormington's Ancient Man in North America it is stated that some were abraded. If the wear was by water, it could be taken as an indication of considerable antiquity, but all specimens examined by a geologist were windworn. I haven't seen Renaud's published material except for an account in The Masterkey, Vol. 29, 1955, No. 5, with illustrations of some Wyoming coups de poing. Similar objects can be found in the drift of this area in waterworn, windworn, and glaciated condition. Renaud was right.

DAWN MEN OF ASIA

For many years there has been speculation as to the existence of the Abominable Snowmen in various parts of Asia. The names given to these beings vary according to the district, the current list is as follows :

Agachkishi	in Circassia
Almas(ti)	in Checheia and Kabardiva
Kaptar	in Daghestan

Lakhir	in Ossetia
Mesheadam	in Azerbajan
Tkyskatsi	in Georgia
Yeti or Yehteh Mehteh Dzuteh	in ascending order of size in Tibet

According to a recent report from Soviet sources Professor Jeanne Marie Kaufman, who is of French origin and is now a member of the Soviet Geographical Society, has been making intensive investigations in Kabardiva in the Caucases, has met several people who have seen these Almas the males of which are over six feet tall covered with thick dark hair, have small egg shaped heads with receding brows and broad flat noses, large prominent lower jaws with prominent teeth, reddish slit eyes.

They walk with inward turning feet, and tooth marks from a young female, about 16 years old, indicate that they have much wider jaws than the average nowadays.

They seem quite harmless and run away from contact with ordinary people, even from groups of children. That they are human beings on a retarded scale of evolution is obvious, they resemble Neanderthal Man, but this is merely a surmise until Dr. Kaufmann has managed to persuade one or two of them to allow themselves to be examined.

I have always considered that the stories of giants which are so common in Germanic lore refer to Neanderthal men who were gradually being driven from their haunts by the arrival of a new and more competent race of people of shorter stature, in whose eyes they would appear as giants.

As postulated by Dr. Pei (NWA 7:7, 1964), Konigswald, Weidenreich, and others there may well have been people who were of considerably higher stature than usual, say about 9 feet, who may have arisen through some genetic freak caused by changed gravitational and electrical stresses as suggested by Reshtov, or merely because they were one of the side lines in the development of humanity which failed, in all probability because people of normal size would be more agile and better able to attack.

Finally it should be observed that these Snowmen are human beings and, as such, deserve to be protected.

E.S.

THE HEAVENER RUNESTONE

In a note in the Interamerican for March last Carl Compton makes the valid observation that it is extremely unlikely that the Vikings would have gone across country to Poteau, Oklahoma, where the inscription is sited. The Norsemen were sailors and undisposed to make cross country expeditions.

The inscription is quoted in "Runenkunde" by Reichart, Jena 1936, but without any reference to its supposed Christian origin which I consider to be highly doubtful. If the inscription is Runic the eight letters in it can be read either: Gaomedal or Lademoag, depending at which end one starts.

However it may be taken that whosoever did put up this inscription came up the Arkansas River from New Orleans, a far safer method of travel than a hazardous trek by land.

The difficulty with these inscriptions is that Runic writing, has certain basic resemblances to Phoenician and other straight line, as opposed to cursive, scripts. This means that the archaeologist has not only to determine which way it was written but also in which language.

When deciding whether inscriptions were made by natives or by aliens there is one simple rule which cuts out masses of unnecessary discussion: If the site is not within easy reach of a river which is navigable from the Atlantic Ocean or the Gulf of Mexico, then it is much safer to assume its local origin.

Unfortunately this rule only applies to penetration from the East, on the Western side there was a lack of rivers and the Chinese, who seem to have made several journeys, found conditions comparable with the interior of China and proceeded over land.

Finally I have a feeling that Runes were probably brought to Europe by Scandanavians who had been engaged as mercenaries in the Near East and had brought back with them memories of Phoenician and Greek writing which they adapted to their own needs. It seems to have been adequate for their needs and to have formed a barrier against the rising tide of Roman Christian culture.

Ogham, a modified Runic script was used in Britain, whilst the alphabet of the Oera Linda Boek, seems to have been an early attempt to produce a cursive form of Runic. The fundamental pattern of all these scripts was much the same, but the sorting out can cause many a headache.

Incidentally there is a note in the same issue of the Interamerican criticizing a theory on Prince Madoc of Wales, put up by Richard Deacon, who postulated sites in De Soto Falls, Alabama; Fort Mountain, Georgia; and Duck River, Tennessee, as having been visited by Madoc. Here again the same argument arises, no large rivers, no settlements. For anybody approaching from the SE New Orleans would pin point the most suitable river entrance. I have no idea how far the Mississippi River was navigable in early times, but I should imagine pretty well as far as Minnesota, Kansas City or Omaha, etc. Unfortunately that leaves a pretty wide area in which to search for artifacts, but it seems reasonable to assume that some will be found of these early merchant adventurers.

E.S.

MOVEMENTS FROM YAKUTIA TO ALASKA

According to Soviet official reports recent archaeological digs in Yakutia in Eastern Siberia have shown that in the 8th Century BC the Sumnaginsk culture (the name of a settlement on the upper reaches of the Aldan river) spread through the region and by the 5th Century BC had penetrated to Alaska.

This hypothesis, which originally appeared some twenty five years ago from the pen of Alexi Okladnikov, the archaeologist, has now been confirmed by Yuri Mochanov, leader of an expedition to Yakutia, which had just returned to Moscow.

The Aldan river area was originally settled between twelve and twenty thousand years by people who hunted bison, mammoth and wild horses.

I have always stood out against the general assumption that America was populated from Siberia, but, on balance, am inclined to accept the idea of a small movement within the last 2400 years.

E.S.

REFERENCE WORK ON SOVIET CULTURAL MONUMENTS

Soviet historians, art critics, archaeologists, ethnographers and architects have pooled efforts to prepare a complete reference edition of historical and cultural monuments of the peoples of the U.S.S.R.

A plan for a multi-volume edition to be put out in ten years' time has been discussed at a meeting in Moscow. The work is conceived as something like a scientific encyclopaedia in at least 100 volumes. It will contain data on the development of culture on the territory of all the Union republics from ancient times to our days.

It was agreed that monuments of art - buildings and architectural ensembles - will be the main subject. Special sections will be devoted to ancient settlements and camps. When completed, the edition will probably become part of a world reference edition of cultural monuments to be compiled on the proposal of Unesco.

BOOKS

THE MYSTERIOUS GRAIN.
Science in Search of the Origin of Corn, by Mary Elting and Michael Folsom.
1967.

Principally designed for High school students but derserving the attention of a wider public, this interesting volume describes very succinctly, in a lucid style especially the archaeological aspects, the search for the origin of corn or maize (Zea mays), a complex problem that has occupied the attention of botanists since the mid 19th century. The seeds of corn cannot propagate without human intervention during several stages of the process, a circumstance that disconcerted Charles Darwin for by this the plant seemed to defy the rule of natural selection. That the present species of the plant both in Middle America and the Peruvian region could only be cultivated was apparent but equally so was the fact that in some point in time the important cereal must have had wild ancestors.

But neither the great Alphonse de Candolle to whom Darwin applied for assistance or others that came after him could provide the variety giving a clue to its origin. In absence of the foregoing one hypothesis gained a wide credence which has persisted for a considerable period and even recently not entirely eliminated by some. This suggested that corn was the result of a cross between two grasses, one a weed called teosinte resembling the appearance of corn but growing wild, and a plant which though unlike seed-bearing ear of corn has some likeness to the seed-spike of the former weed. Since this plant called Tripsacum and teosinte were similar and obviously related being different to any other grass, both bore an apparent relationship to corn. Subsequent experiments tended to confirm the hypothesis.

Because teosinte was native to Mexico, H.J. Spinden the American archaeologist in 1915 postulated that corn derived from these wild ancestors or similar species somewhere in the highlands of Mexico. Others favoured northern Guatemala in the region of Tabasco where the Usumacinta River divides into several branches and overflows the entire region. The latter territories comprise the larger portion of the area between Panama and the United States, and one of the principal centres of pre-Columbian aboriginal culture, the other being located in Peru, the adjoining states of Bolivia and

Ecuador. Both were dependent for their high culture upon agriculture and in particular the social organisation of the Mayas revolved on the cultivation of maize. According to the Popol Vuh, the Mayas who appeared in Guatemala at the beginning of the Christian era, were attributed as obtaining maize from a place called Paxil, which has a meaning "divided or overflowing waters", which some identified with the region mentioned above.

But the origin of corn projects much further into the past than the beginning of the Christian era. Prolonged study and also experimentation convinced Weatherwax who may be called the doyen of corn botanists that after all teosinte and Tripsacum were not the parents of the maize plant. In this he was sustained by another botanist Mangelsdorf and though the controversy continued well after 1945, recognition amongst the majority that teosinte was itself a hybrid became generally accepted, a cross of tripsacum the weed, with the cultivated plant. Did at some stage in Mexico or Central America, agriculture languish, the tripsacum invading the cultivated areas amalgamated with the corn ensuring its survival.

Mangesdorf recognised that experimental botany alone would not solve the problem. There still remained the possibility that the maize plant had originated outside the American continent. Several Asiatic areas had a limited distribution of maize cultivation. Had the plant been brought across the Pacific as the Diffusionists in the mid-twenties postulated. Only archaeology could provide the answer. Botanists were attached to archaeological expeditions and during one of these on the fringe of Middle America in a remote area of New Mexico, amongst the remains of broken pottery, detritus of meals, found in a cave that had been inhabited intermittently for a number of centuries, ancient fragments of corncobs and their appurtenances came to light. The whole collection gave evidence of the process of evolution in corn from ancient to near recent times and indicated that the wild variety had been a pod-popcorn. These specimens found in Bat Cave yielded a carbon 14 date of 2500 B.C. and were supplemented by finds in other caves until finally one in 1962 called San Marcos amid the lowest layer of debris, produced a number of cobs that had characteristics which Mangelsdorf's studies had led him to consider that wild corn should possess. Wild corn had been found at last or at least something approaching the species, some of the cobs having a respectable antiquity of 7500 years.

At this site in the valley and its environs traces of human occupation extend backwards in time to at least twelve thousand years, when a few nomadic hunters eked a precarious existence dependent upon a few small animals and edible plants such as the corn-cob and squash, till at last agriculture was introduced or invented and an advanced culture developed. Details concerning this Mesoamerican culture are not provided by the authors and therefore it is not possible to evaluate it in its archaeological context. One would be interested to know whether these early highland agriculturalists can be associated with the horizon called by H.J. Spinden and other Americanists a few decades ago, the Archaic culture. The foregoing distinguished by its ceramic remains were regarded like the cultivators of San Marcos as having originated in the highlands of Mexico. It spread throughout Middle America without change to the Isthmus of Panama and in the north appears to have penetrated to the United States.

Before the Mexican area or the site described above can be accepted as the place of origin for the corn-cob and its cultivation, a connection will have to be established from Venezuela southwards through Colombia and Ecuador with the high culture of Peru. The cultivation of maize in the Andean region appears to have begun well before 2500 B.C. and it cannot be overlooked even 27 years ago in 1941 Dr. Hugh Cutler, an experienced botanical explorer collected a group of varieties with primitive characteristics.

That corn or its wild prognitors was of greater age than first thought and undeniably a native of the

Americas was convincely demonstrated in 1950. In that year Swiss Engineers were drilling bore holes for geological purposes through the substratum of Mexico City situated on the site of a onetime lake. A paleobotanist named Sears who happened to be there, persuaded the Swiss to let him have some of the cores and after noting the depths of these took them to the United States where he and his assistant worked on the samples of pollen in the laboratory.

During the pollen analysis, grains considered to have come from the grass species were revealed and after prolonged examination declared to be those of corn. Some of these pollen grain came from the lowest levels estimated approximately eighty thousand years old. These grains must have come from a wild species and it seems at last fossil corn has been discovered though the period and habitat of the first cultivators still remains an open question.

This monograph that has exceedingly well drawn illustrations inserted in the marginal spaces though it perhaps over simplifies a complex subject should encourage the young palaeobotanist to probe further into the evolution and cultivation of corn which even more than ever is of vital importance to mankind.

L.M. Young.

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A PERSONAL MESSAGE

I would like to express my thanks to the many friends who so kindly congratulated my wife and I on our Golden Wedding in March last. Gradually I shall manage to reply to each of them, in the meantime please accept our apologies.

E.S.

THE RUZO CONCEPT

During a recent visit to Paris we had the opportunity of dining with Dr. Ruzo and his charming wife, and of discussing the implications of his most recent discoveries in this particular field of megalithic sculpture.

I am perfectly willing to accept the possibility that natural forces will from time to time wear rock formations to an extent such that they appear to have recognisable shapes. Doubtless somebody will be able to work out the statistical probabilities of such events occurring.

But the possibilities never exceed a maximum of three or four percent, by which it is implied that out of an assembly of 100 standing rocks one might, perhaps, find three or four which could have a vague resemblance of sculpture.

When, however, as with the discoveries of Dr. Ruzo, the percentage rises from three or four to eighty and over, this implies that either the entire concept of mathematical probability has to be revised or that he really has discovered something.

I have seen photographs taken in France, in Northern Europe and in Eastern Europe, all of which show the same basic principles as those first discovered at Marcahuasi. But these ideas are alien to practically every form of megalithic sculpture so far discovered and, to my mind, no visible connecting link has as yet been discovered.

Who the people were who did the work one has no idea. It is possible, that as Dr. Ruzo suggests, they were akin to the Ainu of Japan, whose culture bore the same relationship to that of the early Japanese as did that of the Etruscans to the early Romans, providing standards that were seldom equalled and never surpassed. In architecture the Japanese and the Romans have gone down to history as first class copiests but never as originators.

The procedure used has certain analogies with the process whereby three different aspects of a series of pictures, say a man opening a packet of cigarettes, lighting one, and puffing away with obvious enjoyment, are so arranged on sheets of glass that one sees the first on approaching, the second on standing face to face, and the third as a backward glance on departing. The whole procedure involves the simple application of current technical processes and is to be found everywhere.

These early sculptors produced rock carvings which differed in their nature according to the angle at which the rays of the sun or of the morning light impinged upon them, giving, shall we say, one picture at dawn, one at noon, and one at sunset. Obviously they knew far more about certain branches of optics and perspective than most people do nowadays.

For all we know this may have been their sole accomplishment, we have little evidence of their habits and customs, we do not even know with what objective in mind the sculptures were made. All we know is that they and their art have vanished from the face of the earth.

The photographs from all these various sites which I have seen are most impressive and, on the strength of them, I am prepared to back Dr. Ruzo to the limit. But it must be admitted that it will take far more than that to break through the shell of self imposed blindness which enables the pundits to lead such comfortable and unworried lives.

"WAS HELFEN FALKEN LICHT ODER BRILN,
SO DIE LEUT NICHT SEHEN WOLLEN"

E.S.

THE MASMA CULTURE

by Luis Felipe Angell, 1967.

Translation by Olga Bingham Powell.

Edited by Vera Howe.

Last March, Harry Morgan Roving Editor for Reader's Digest, stopped in Lima for a few days on his way to Mexico. On the last day of his stay, he was talking to a group of writers he had contacted, and the subject of the origin of Man came up, with comments in particular, on the uncanny skill of some ancient people to foretell the future.

The name of Daniel Ruzo was mentioned and Morgan was interested. A member of the group explained that this extraordinary man not only owned the most complete collection of books on Nostradamus who was world-known for his studies on predictions, but that he, Ruzo, was also the originator of the theory that the Amercian continent was inhabited more than ten thousand years ago, by a race of white people similar to the Ainu people of Japan. These people or their civilization, "left their mark upon the Earth by means of gigantic sculptures carved in the living rock, thereby presenting an extraordinary characteristic. They can be appreciated in full from only one given place, and only at the precise moment when the sun passes through a certain spot in the sky, allowing projections and ledges to cast shadows on the very place which the artist desired".

Further studies of legends and symbols obliged Ruzo to accept as real, the existence of very ancient cultures complete with their complex social organizations and high levels of evolution. The first discovery of these unknown sculptures was in San Cristobal Hill on the outskirts of Lima. Others followed in different places on the Peruvian coast and in Marcahuasi, Kenko and Macchupichu in the Andes, and finally in other parts of the world. These sculptures could prove beyond doubt, that there have been complete cultures which have suddenly disappeared through cataclysms of a cosmic nature, and certainly this technique has not been repeated during the eighty centuries of Human History. New people came and went, each leaving different styles of sculpturing behind them, but always tri-dimensional figures. None have chiselled the bare rock "in situ".

Morgan was excited by all he heard but still refused to believe there was any evidence available for him to study. The group then drove to Ruzo's place to see his collection of photographs and slides, gathered during forty-two years of research on his theory. After seeing 200 slides and several photograph albums, Morgan decided to cancel his trip to Mexico, instead he, Ruzo and his wife Ellya Carola, Angell and the press photographer for 'Correo', Werner Lang, found themselves heading for the sculptures.

What is known of the place where the sculptures were found and of the man, Daniel Ruzo who discovered them? Ruzo is a brilliant lawyer and a successful business man. He is also a poet and he won the Spring Carnival Prize at the age of 18. This extraordinarily active man was born at the turn of the century. He is tall, straight and wiry, keen-eyed and sharp minded and looks younger than his 66 years, and was able to beat all the group at walking at an altitude of 3,500 metres in Cuzco, but then he has spent a large part of his life in the Andes exploring and doing research. The centre of his studies has been the "sacred forest of Marcahuasi", which is a stony plateau rising to 4,000 metres, about eighty kilometres North-east of Lima. This plateau still shows traces of prehistoric works of defence, habitation and hydrology. The air there is bitterly cold. Hardly any vegetation shows amongst the immense granite blocks. The silence there is absolute for not even animals will remain in these square kilometres of millenary solitude. It is as if life stood still there, or as if the landscape belonged not to this Earth, but to some strange uninhabited planet. The weird loneliness is only broken by a small rough hut built by Ruzo for shelter during the months when the sunlight is propitious for taking photographs. This is the site of one of the greatest mysteries of human pre-history. Hundreds of gigantic sculptures of men and of beasts are all around. These were carved in the living rock thousands of years ago by a race of people that has perished and disappeared.

Going back to the month of August, 1952, Daniel Ruzo found himself in Marcahuasi entirely by chance. Knowing his fondness for prehistoric studies, his friend, Representative Enrique Dammert Elguera, had given him a curious photograph taken in 1944 by an amateur, Kuroki Riva. It showed a perfect head chiselled in the bare rock, at about 25 metres from the ground. Because of the faultless chiselling of the rock, it certainly could not be the result of Natures whim, it was beyond doubt, the work of man.

"Marcahuasi confirmed my theory", Ruzo says, "forty years ago in 1924, I discovered a large figure carved on the heights of the San Cristobal Hill, which I could distinguish perfectly from the windows of the writer, Pedro Astete's house. I carried on further research about the hill and discovered the head of a dog which could be seen quite clearly. I climbed up to it and could then appreciate how the rock had been carved at different levels with the express purpose of showing the head of the animal. This could be fully appreciated only from the place called "Piedra Lisa"."

Centuries ago the Huancas inhabited the central part of Peru from Lima to Tarma. A hundred and twenty years before the Spaniards came, the Incas managed to subdue the Huancas. The Quechua word for stone is 'huanca'. Chroniclers tell us the Huancas were very skilful in stone carving, they also tell of their sacrifices of dogs and their eating of the flesh of those animals and how they made trumpets out of their skulls. The extent of their dominions must have been enormous, as the outline of the carvings of the dog heads can be seen on widely separated heights of the Andes.

When he received Riva's snapshot, Ruzo immediately started for the plateau. From the Autisha bridge he had to climb the mountain on mule back. He passed the town of San Pedro de Casta. Then the climbing got steeper. Finally he reached the plateau of Marcahuasi, to be immediately confronted with a veritable 'rock-amphitheatre' which was described as a 'sacred forest' by the French scientist, Pierre Legalic. There he saw for the first time the original sculpture of the 'Inca's Head'. The name 'Inca's Head' was given to it by the neighbouring villages. On analysing the Magma forming the plateau, it has been discovered that the white dioritic porphry from which the sculptures have been carved, has needed at least 10,000 years to take on the grey tint that it now shows in the cuts, therefore the sculptures must have been made at a time when America was supposed to be uninhabited.

For several years from dawn to dusk, Ruzo examined carefully all the angles and contours of the sculptures. He took hundreds of photographs, studied the shadows projected by the sunlight on the carved ledges and finally perceived the amazing truth that there were fourteen human heads carved on the rock site representing men of different races. There were Aryan, Semitic and Negro faces. Some faces like that of the god Janus, faced North and South. The most remarkable thing was how the artist had made use of the changing ranges of light and shadow throughout the day, to set off his work. Ruzo's patient dedication finally led him to discover the precise time and place which permitted the clearest perception of each image, and of this he kept perfect records with his camera. There was no doubt then, as to the human origin of the monuments, but who had carved them? The Incas and the Huancas were skilful at working in stone, but according to the historians, they never even knew of the existence or physiognomy of those other races: the Negro, the Semitic, or even less, the Caucasian who were supposed to have come only after America was discovered.

Daniel Ruzo built a small hut and came there for weeks at a time to continue with his studies. When the whole plateau was explored, one amazing discovery followed another! He became aware that the whole of the Marcahuasi plateau was full of human and zoomorphic figures, some of gigantic size. The most extraordinary thing of all was to discover that many of the animals represented had never existed in America! There were lions, elephants, camels, turtles, monkeys, penguins, seals, horses, frogs, dogs and an ancestor of the turtle, the 'Amphichelydia' whose hard shell was divided into four mobile parts. This animal was known only through its fossilized remains! More surprises followed. On a weir in the plateau, the rocks had been carved into fish that appeared to float on the water. Human outlines were numerous on the bare rocks. Sometimes these could be seen at a glance, at other times the precise hour and angle had to be found so as to photograph them. Some of the monuments were most unexpected. The 'Mexican Lion' was represented with a closed mouth with the tongue protruding, exactly the same figure as the marble head or mask of the Olmeca culture found in Mexico. The British Professor, Peter Allan, on visiting Marcahuasi, was most impressed by this figure. "I have no doubt", he said at a press conference in Lima, "that the 'Mexican Lion' chiselled in the rock is a deliberate representation". It is a clear-cut figure which can easily be perceived at mid-day. A point of light in the centre of the eye is the finishing touch to it. Peter Allan confirmed how, after that very hour, the figure would begin to fade and be nearly lost to the observer.

After further study, Ruzo found more concrete and specific aspects of this ancient civilization. There were heads of helmeted soldiers, the head of a king with pointed triangular headgear proclaiming his high dignity among primitive people, sacrificial slabs, parallel lines drawn far back and four altars, two of which were constructed so that the voice of the officiating priest could echo and increase in volume.

Professor Hans Bellamy of Vienna University, showed his amazement at how these monuments (whose determining characteristic is that they have only two dimensions) not only had withstood the test of time, but also had fulfilled all scientific requirements for them to qualify their worth.

The French anthropologist Marcel F. Homet, who visited Marcahuasi with Daniel Ruzo, stated in one of his essays that, "without a doubt, all these were the product of the human hand, and were carried out thousands of years ago".

The great battle had now begun for the man who discovered Marcahuasi. Since 1952 Daniel Ruzo had been gathering new evidence to support his theory. He thought at first it was an exclusively Peruvian culture, and he named it "Masma". A little later he discovered similar cultures in Mexico and Brazil. In Mexico, Doctor Antonio Pompa y Pompa, Secretary of the National Academy of Science, made an excursion to the Meco Hill and verified that the megalithic frogs of Guanajuato were the work of prehistoric man. Ruzo is now convinced that those same cultures flourished in Europe Asia and Africa as well, and has since then been collecting evidence to support this theory. He has lectured on the subject in the Sorbonne as well as in other scientific centres, and has published many pamphlets and shown Marcahuasi to any researchers who have asked to see it. Official circles however, have ignored his discovery "because it would bring to nothing all the accepted theories of human prehistory".

It has been said that American man is comparatively new in that continent, but the ten-thousand-year-old monuments are proof to the contrary. It is also taken for granted, that the first inhabitants entered America through the Behring Strait from Asia. The sculptures show that there were white men here before the Asiatics arrived. Father Miguel Cabello Balboa, chronicler of the Spanish conquest of Peru, stated in his "Antarctic Miscellanea" written in the XVIth century, "that the Inca Tupac Yupanqui went over to Jauja where he was shown some extremely ancient buildings which the natives told him had been constructed by some white foreigners who were so tall and so strong and so brave that only time could ever beat them".

Pedro Cieza de Leon, another chronicler of that time, was informed by the Indians that "bearded white people" had come from abroad and had settled in the place that one day was to be called Peru. When the Spaniards came to Ayacucho they met with a certain name, "Cori-Sapra" which means "gold beard". There have been these and other references to white men as early inhabitants of the continent of America, but there are no other evidences of their presence besides the sculptures.

Ruzo comments that: "this civilization was obliterated by some catastrophe like the Flood, quoted by legends of all people including those of ancient Peru." The Bible (Genesis Ch. VII-4) speaks of this cataclysm, which 'razed mankind from the face of the Earth'. Every known mythology mentions this cataclysm. After it, only those monuments mentioned survived. Some have been destroyed by time but others are nearly intact. "I believe with Hoerbiger," continues Ruzo, "that our planet received, thousands of years ago, the impact of its satellites. These took centuries to come within the danger range of distance. The resulting variations of strength in the force of gravity caused the appearance of gigantic vegetables in the Tertiary Period, gigantic beasts in the Quaternary, and the legends of all ancient races tell of gigantic men. With Velikowski, I believe that the proximity of heavenly bodies to our Earth, has produced terrible upheavals whose memory has been kept in the history and legends of contemporary people inhabiting the different parts of the world. Man has had to resume, time and again, the painful road to the mastery of his environment. Remembering that the Earth turns on its axis from West to East at a speed of 1,666 kilometres per hour, its speed when turning around the Sun is thirty-four times greater. Any change in speed or any tilting of its axis, (which like the axis of an immense top, would sooner or later go back to its original position) would produce tremendous water displacements. The huge waves of the Atlantic would destroy Europe and Africa and the pressure thereof, would rebound to the East coast of America. The waves of the Pacific would likewise plunge on the West coast of America and on Asia and Australia, whilst the ice in the Polar regions would crack with the pressure and violent changes of temperature. All descriptions of the Flood and the bodies of pachyderms frozen while eating tropical grasses, make this uncomfortably clear".

According to Ruzo, this is the real prehistory of mankind. Survivors of these ancient cultures evidently kept these apocaliptic visions in their sacred books and legends. Men have always sought to leave their mark upon the Earth and the contemporary artists have given form to this desire, painting caves and caverns where the people were saved by closing themselves within, to save themselves from the approaching cataclysms. Official science admits these paintings and grants them to be between ten and forty thousand years old, but considers the authors 'primitive'! How can they be termed 'primitive' when,

a) They knew the technique of painting and extending their paints knowing that a transparent calcareous film oozing from the rock, would preserve them for centuries?
b) There were a tremendous number of them judging from the quantities of caverns that have been found decorated?
c) They had Art-Schools as shown by the drawings of Masters and pupils?
d) They supported themselves and their families through a social organisation allowing them to live exclusively to paint?
e) They used in the dark caves, a smokeless light to do their painting, had there been any smoke, it would have been retained under the transparent calcareous film?

This same 'Official science' which once forced Galileo to retract his statement that the Earth was round, will soon have to accept that the so-called 'primitive artists' carved and sculptured the mountains! Ruzo's photographs are incontrovertible proof of this fact.

As to some of the sculptures, the ancient Egyptians worshipped the goddess Thueris, said to be the symbol of fertility and benefactress of women in childbirth, whose statue is to be seen in all museums today, and represented as a female hippopotamus standing on her hind legs and carrying in her human hands a symbol of life, which is represented as an elongated figure of eight. In Marcahuasi there are five sculptures of Thueris, one of which is in a remarkably good condition. One can plainly see the hippopotamus, the round cap, the large snout, the pregnant belly and even the Life symbol in her hands. At one time the photographs of the statue in the Cairo Museum together with the four-metre-high sculpture in Marcahuasi, were published side by side, the likeness was indisputable. The Thueris cult is millenary and in the reproductions of it, there is no possibility of a casual copy or of a co-incidental outline made by Nature. There are camels and crocodiles in Marcahuasi and a very clear-cut representation of a cow being sacrificed by an officiant, his arm raised about to slaughter the animal with the knife in his hand. This scene is reproduced in several European museums.

The number of statues in a reduced area, their technique, some points of observation marked by undoubtedly human hands, the art that makes use of light and shadows at a given moment, as well as the repetition of certain 'motifs', all lead to the acceptance of 'Rock Paintings' together with 'Lithic Sculptures'. Similar sculptures to those of Peru have been found in the woods of Fontainebleau, a few kilometres from Paris. Fontainebleau woods are also a 'sacred forest'. Ruzo has visited it a number of times. Unfortunately, photographs of the kind needed for this study cannot be taken casually. One must live at least a whole year in the region to obtain them and make use of sunny days, specially equinoxes and solstices. On reading Ruzo's documents and studying his photographs, Mrs. Edith Gerin (who had already photographed the sculptures in Fontainebleau, thinking them to be Nature's whim) came to accept the theory of prehistoric sculptures, and continued to work with her camera with renewed interest. Today her collection has 200 pictures which, by their quality, are further proof of Ruzo's theory.

At Cerne Abbas, England, there is the famous giant cut in the bare hillside, it is approximately thirty metres high. In Somerset there is a zodiacal map whose real size had to be determined by pictures taken from the air. Thus it was found to be ten miles in diameter. In a circle drawn by the roads and by other topographical incidents of the region, all the figures which have traditionally represented the zodiacal constellations, are to be found in the order in which they can be seen in the sky in the twelve groups of stars. The enormous figures can be appreciated in full in the aero-photographs.

Later monuments retain some memory of the sculpturing technique discussed here. Ruzo has found out that in the principal cave in Macchupicchu, the sun shines on the central stone once a year at the June solstice. From the entrance, the right side is always lighted and the left is always in the shade. The Egyptians had the same technique. In the temple of Abu-Simbel, the sun on a given day in the year, penetrates to the heart of the temple, its light falling on the favouring gods, leaving one of them the god of Evil, forever in the shadows. In Easter Island some eyeless statues preserve the old technique. They were placed in such a manner that the arching eyebrows form the perfect eye at a given time of the year. Ruzo, who had given the technique the name of 'Masma Culture', as he thought it to be exclusively Peruvian, realized, when he saw identical statues in other parts of the world, and learned to relate their technique, that he had found a most ancient culture which extended over the whole surface of the globe.

What is the explanation of the presence of lions, hippopotami, horses, rhinocerous etc., on a plateau 4,000 metres high in the Andes and carved 10,000 years ago? How can the 'Inca's Head' together with the heads of men of differing races be explained? Why did the Egyptian goddess Thueris come to the American continent?

To see Daniel Ruzo's pictures is to be transported to a different world and one which we did not know existed. There is something almost eerie about the photographs which, after he had seen them, drove Harry Morgan to Macchupicchu to meet with the uncanny visions. There Morgan and Lang saw the 'sacred stone' rising on a platform on three ledges, which was a truncated pyramid holding the head of the goddess Thueris. Although in a semi-ruined condition, two concave sides of the pyramid still show its size. From a corner in the upper platform which is roughly 20 x 32 metres, one can see the head of the goddess. It is not therefore a 'sacred stone', but a 'sacred pyramid'. Holding the corner of the platform of the Intihuatana (Inca sun-dial), they could perceive a large human head, which when it was noon, fascinated Lang the photographer. Half an hour later, the light and the shadows had changed their range, the head could not be said to be recognizable, it had nearly disappeared! For them, Ruzo had amply proved his theory.

When the caves of Altamira appeared in Spain, official incredulity was so great that it nearly sent their discoverer to jail. He was accused of fraud and the 'sham quality' of the rock painting was 'proved'. Twenty-five years (and many discovered caves) later, they capitulated, finally admitting the artistic quality of prehistoric man. Today nobody doubts the authenticity of those paintings. Hundreds of them have been discovered, and studies and reproductions of them have been made. It is quite possible that in a few years time, Daniel Ruzo's discovery will reach the rank of historical truth. Men of illustrious quality and integrity, as well as scientists and scholars have visited Marcahuasi. They have publicly testified their full conviction that however it was done, it was done in the Megalithic era, with a sculpturing technique now lost. Those are the facts. There is Marcahuasi, near the town of San Pedro de Casta, eighty kilometres from Lima with its forest of sculptures. There are the heads of men who lived 10,000 years ago, and the bodies of animals which never existed in America!

As Official science is traditionally unwilling to accept revolutionary cultural contributions, specially when they threaten to overthrow theories and premises already admitted as 'absolutely certain', how do they account for a white-man civilisation populating America 10,000 years ago, when "we know" that that continent only began to be really populated a handful of centuries ago, and then not by whites, but by men who came from Asia? How are they going to explain the presence of an Egyptian goddess in Peru represented as a stone hippopotamus, when "we know" that there are no documents to attest prehistoric ties between Egypt and Peru?

Meanwhile Daniel Ruzo continues his research on the impressive sculptures. He now lives in Brazil studying the mountains that surround Rio de Janeiro where he has also discovered megalithic monuments. He is the man in search of man in millenary stones.

"Luckily", he says, "there are other forests waiting for the scholars to discover them and the sculptors and the photographers to travel there to see them. The sculptures I seek and find are so enormous, that at least I can't be accused, as the discoverers of Altamira and Glozel were, of carving the mountains myself, to fake evidence to support my theory".

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THESE ROMAN ARTIFACTS

The great authority on Roman artifacts in Mexico is Professor Robert Heine Geldern, who has put in an immense amount of work in careful and detailed examination of all his finds. A translation of an article of his in the Proceedings of the Austrian Academy of Sciences, published in 1961, which has recently come my way, refers to a most interesting terra cotta head discovered near Mexico City by Professor Jose Garcia Payon.

As a diffusionist I am perfectly willing to accept the presence of Pre Columbian artifacts of European origin in the Americas. But what worries me is the fact that they are of Roman origin. The Romans were known throughout history as extremely bad sailors, not only their troops but also their seamen were usually seasick during most of their journeys, so that it was only a relatively short haul, such as the invasion of Britain which could be undertaken with safety.

I am, at this stage, unwilling to accept the possibility of a purely Roman expedition to the Americas, if only on the grounds that their seamanship was inadequate. The problem as to how this particular head reached America is, therefore, of considerable interest. The suggestion by Louis Malleret that it may have come by way of the Mekong River is possible but open to certain doubts.

It is fairly well known that the Phoenicians had a base at Saigon possibly as early as BC 1700, and certainly at the time of King Solomon say in BC 900. But after the fall of Carthage this trade seems to have collapsed. As for the Chinese, while we have plenty of evidence of a Chinese visit to California in 459 AD, mostly emenating from a certain Professor Chu Shten Lei of Peking in 1962, Dr. H. Mertz had already written and described the whole matter in 1953, so one can only conclude that a copy of her book must have reached China, taking ten years to do the journey. There was also a student named Larry Wong, who gave out a similar story in October 1960 from the University of Vancouver. But here the dates are wrong as the head has been dated at AD 200. There were earlier Chinese expeditions to America but none of them seem to fit into the time period already established. The earliest, some five hundred years before the Phoenicians arrived at the mouth of the Mekong River, is out of the question.

Professor Geldern suggests that there was a trade between China and the Mexican cultures between BC 700 and 200 AD, which would fit in quite nicely with the supposed date of the terra cotta head. But in that case why should it have been necessary for the Chinese to send an expedition to America in 459 AD as by then they should have been well acquainted with the area. It is not even as if there had been a change of government to provoke this expedition. The Tsin Dynasty ended about

265 AD and the Southern Dynasties which took their place lasted until 589 AD.

Some of the pieces of the puzzle are obviously out of place. I always consider archaeology to be a tesseract in which time, place, and historical background, blend together to make a perspective which by its very nature seems impossible and yet contains within it the very fabric of truth.

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E.S.

THE THREE PYRAMIDS OF GIZA

Ⓒ Egerton Sykes 1968

Some time ago I wrote a paper in which I observed that the three great Pyramids of Egypt were part of a complex of structures having its main entrance adjacent to the Temple of the Sphinx. The Rulers after whom the Pyramids are named: Cheops, Chepheren, and Mycernius appear to have had little but a fortuitous connection with them, in that their deaths occurred at periods coinciding with the completion or near completion of the structures.

My attention was drawn back to the subject by reading in the Paris edition of a New York Paper a note to the effect that the Expedition which had been using Cosmic

Rays to establish the existence of a chamber or chambers in the Great Pyramid had done so.

While admitting that all three of the Pyramids show a monumental waste of stonework and that there is room for dozens of chambers in any of them, although it is hard to think of any means of finding them except by pulling the Pyramids down stone by stone; the real factor which infuriates one is the knowledge that had any of these expedition chiefs troubled to read the extant literature on the subject, they would have realised that the three Pyramids plus the Temple of the Sphinx, are inter connected by a network of subterranean passages, the entrances to which are now concealed under the piles of rubble which have been carefully placed in the various bits of tunnelling since the days of Vyse and Perring.

These communicating subways being underneath the rock surface of the plateau on which the three Pyramids stand, are unlikely to be discovered by placing expensive equipment above that level in the hope of checking by Cosmic Rays or Muon Particles. The tragedy is that the specialist is so hopelessly bemused with the splendours of his own approach that he is never prepared to consider the existence of other and, possibly, more favourable methods.

There is also the fact that the study of the Classical Arab literature on the subject no longer attracts the best brains in the Anglo Saxon academic world, and has practically ceased to be of interest to the Al Ahazar University as it has neither religious nor political connotations.

Just as this was going to press I was shown an article by Katherine Doyle in the Sun for 23rd August, observing that similar experiments were being carried out in the Pyramid of Chephren, this time in an attempt to find the mummified body of Chepheren, although I should have thought they would have done much better to have looked in Meydum, the step pyramid which he also built, in order to play safe and please both the conservative priests who liked step pyramids and the modernists who wanted them with smooth surfaces. The general impression is that everybody was so furious with this double dealing that his body was just disposed of somewhere.

Chepheren's pyramid has the unusual feature of two entrances both leading to a passage cut in the rock before the pyramid was built on top of it. The lower corridor is still blocked with limestone boulders, and I would suggest that Professor Alvarez has the whole lot cleared before he starts work as it is there that the secret entrance discovered by Arab explorers exists.

I quote here from Miss Doyle's article, for which I trust I shall be forgiven. "Chepheren, last seen 4500 years ago on his way to be buried in the Pyramid known by his name at Giza.

Since then, nobody has seen anything of Chephren. Archaeologists have tunnelled into the heart of the pyramid. They have extended the maze of passages in the tomb. They have tapped the walls listening for the hollow echo of a secret chamber."

Now they are bringing in a computer in the hope of finding Chepheren's mummy. IBM have donated a $100,000 computer to a team of scientists including Dr. Luis Alvarez, of the University of California, who proposes to fire muons through the walls of the structure from the central chamber to scanner screens outside.

"The computer will be used to analyse the number of particles that get through the rock walls and to compare the actual amount against what was expected to get through.

Where more particles get through than the scientists expected, that will be the place to start looking for the long-lost Chephren.

The computer will produce a chart showing all the areas worth searching in the 447ft.-high pyramid.

The computer was shipped from Greenock and arrived at the Ein Shams University in Cairo. Dr. Alvarez estimates that it will take a month to install and programme the computer, but the actual survey will take only a fortnight, so that the riddle of the missing Chephren may be solved in October next."

For those interested in following up the background of the secret treasures of literary and scientific worth concealed in the Pyramid Complex, the works listed below give most of the information available at the moment. It must be emphasised that everything which was capable of being removed and sold has already vanished a thousand and more years ago. But what is left, while useless to the robbers may prove to be of inestimably greater worth.

The works listed are in approximate order of date of publication.

BC 3000	Book of Thoth.
1193	History of Phoenicia by Sanchuniathon.
1100	History of Phoenicia by Moschus.
650	Atlantikos by Solon, quoted by Plato.
450	Euterpe (124-127) by Herodotus.
350	Timaeus and Critias by Plato.
315	Crantor, quoted by Proclus.
300	Egyptian Dynasties by Manetho.
150 AD	History of Phoenicia by Philo Byblos.
390	History of Rome by Ammianianus Marcellinus.
460	Commentary on the Timaeus by Proclus.
510	Phoenician Cosmogony by Damascius.
870	Djabailat, also World History, by Abou Balkh, MSS of latter in Bodlean Library.
923	Akbar al Zamen-Noumadj al Zamal (Fields of Gold-Mines of Gems) by Masoudi.
930	History by Muyerdi.
1050	Geography by Edrisi.

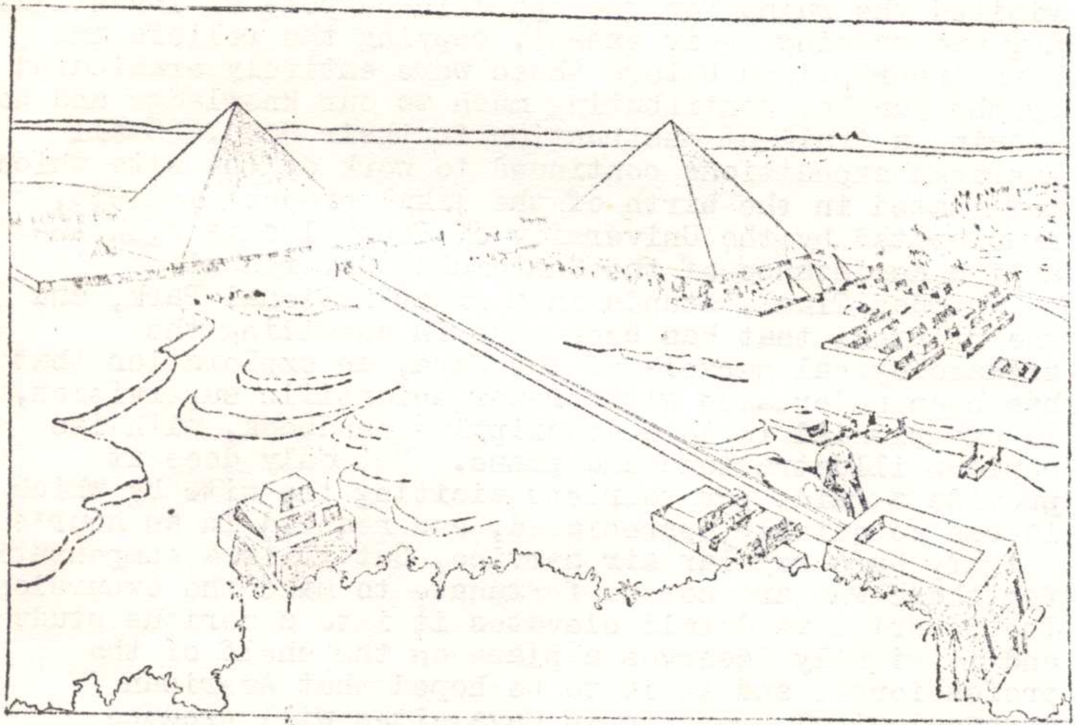
Of these the Arabic writers give the fullest accounts of the contents of the penetralia of the Pyramids, simply because they were written when every important person in the Arab world was becoming rich by looting the treasures contained in them.

The Greek texts are available in numerous translations, those in the Loeb series are usually the best. There are two extremely bad translations of Edrisi in French, the writers knew Classical Arabic but nothing of either Geography or history. There is no English text of which I am aware.

The Book of Thoth/Hermes Trismagistus, was considered by Sir Charles Marston, the eminent Biblical Archaeologist, to have been consulted by Sanchuniathon, Moschus, Manetho, Philo and Damascius.

Any modern guidebook to the Pyramids will give plans of the various passageways.

E.S.



1ST AND 2ND PYRAMIDS AND SPHINX

TIKAL: A HANDBOOK OF THE ANCIENT MAYA RUINS. William R. Coe. The University Museum. University of Pennsylvania. 1967.

Tikal situated in the Guatemalan region of Peten is one of the oldest of Maya cities in the central area. Uaxaatun, a few miles to the north is a few decades older. Unlike many ancient sites, the unaccessible terrain has prevented in the past the usual depredations and those who did trouble to make the 200 mile trek, over very rough country such as Alfred Maudslay, or Teobert Maler visited the ruins for the specific purpose of investigating and mapping their extent, copying the reliefs and Maya inscriptions before these were entirely eradicated by the jungle, contributing much to our knowledge and not leaving a trail of destruction in their wake. Small American expeditions continued to work on the site which culminated in the birth of the Tikal project in 1956, inaugurated by the University of Pennsylvania with the active assistance of the Guatemalan Government.

Today Tikal, stands in a great national Park, and the progress that has been made in unveiling the archaeological marvels of the Maya, an exploration that has been undertaken with proper scientific supervision, is exemplified in this descriptive handbook, with its copious illustrations and plans. Not only does it provide a guide for tourists visiting the site by which it can be quickly appreciated, and reached in an hour's flight, by a regular air service, but it is a compensation for those who are not as fortunate to make the excursions. The descriptive detail elevates it into a serious study and it rightly deserves a place on the shelf of the professional, and it is to be hoped that American archaeological projects in Maya sites will produce equally readable and excellent volumes. It is a matter of regret, the reconstruction and conservation that has been done for many Maya and Mexican cities cannot be extended to ancient Peruvian cities such as Tiahuanacu, whose vestiges are slowly disappearing into oblivion.

L.M. Young.

CONCEPTIONS OF KENTUCKY PREHISTORY. Douglas W. Schwartz. Studies in Anthropology No. 6. University of Kentucky.

Archaeology in Kentucky as a professional science did not commence until 1927 when a department of Anthropology was founded. This is rather surprising especially to those born in an era when every State University has its faculty of anthropological and archaeological studies, but particularly in the instance of Kentucky. For in part at least, within the boundaries of the State are the remains of what was known to most as the Mound-Builders, a term that is avoided as much as possible by the author of the above volume. As the foregoing indicates in this concise survey of Kentucky archaeology from the European colonisation in the 17th century till the present time, the interest in these earthworks which resemble very closely those found in parts of Europe, was considerable. The earlier phase of antiquarian curiosity culminated in the work of Squier & Davies now regarded as a classic, published by the Smithsonian Institute. Generally at this stage even at the middle of the 19th century the professional archaeologist begins to dominate the scene, but though the foregoing work which receives an appreciative tribute from the author of this present historical account seems to have stimulated a more serious and critical approach to the problem, there were others that did not exercise this faculty. Antiquarian societies did much to promote a more organised archaeological research which is manifested in the number of individual descriptive reports that emerged from 1870 to the end of the century. The former who here appear to have been accorded little recognition, no doubt the principal recipients apart from private collectors of the numerous artifacts that resulted from these excavations and described in the relevant treatises. It is a matter of speculation how much of the material from this early period alluded to in this volume and the contemporary reports which are referred to, has been preserved. Now that the historical scene of Kentucky archaeology has so concisely and competently been described, surely the principal task of the University Department of Archaeology & Anthropology, is to catalogue all the antiquarian artifacts including all the information that can be derived concerning these in the State, both in public and private collections and classify these in their various categories. From the foregoing analysis new and possibly surprising patterns may emerge.

L.M. Young.

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DATA AVAILABLE TO COLUMBUS

At the time of Columbus there was a vast store of data accumulated through the ages pertaining to the Atlantic Ocean.

For example there are only three volcanic areas in the Atlantic, these are in Iceland, Teneriffe and Martinique. The volcano on Teneriffe, known as Teyde inhabited by the demon gods Achman and Guayota, who reigned over Echeyde the nether regions, was seen in BC 506 and reported by Hanno. In the Irish travel tales of Bran, O'Corra, and Maeldune, there are reports of visits to no less than seven volcanic islands, one by Bran, four by O'Corra and three by Maeldune. The fact that the narrators knew nothing about volcanic activities is obvious, and testifies to the fact that they were not drawing on Mediterranean sources for their stories. I think that none of them reached Teneriffe and that the stories relate to Hecla or Pelee. For those interested here are the references: Branden: Island No 7, the Volcanic Eruption. O'Corra: Island No 3 on a Pedestal (i.e. a volcanic cloud), Island No 5 with the Flaming Rampart, Island No 6 with a Volcano in eruption, Island No 14 with an erupting volcano. Maeldune: Island No 21 with an erupting Volcano, Island No 27 on a Pedestal, and Island No 32 with the Flaming Rampart, as with O'Corra. The stories were known throughout Catholic Europe.

While Mediterranean explorers were well acquainted with Teneriffe, which lay on the circle track; it seems that the Irish, like the Norsemen, proceeded mainly by St Kilda, Rockall, Faroes, Iceland, then coasting from Labrador Southwards, just as the Vikings did.

E.S.

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PRE COLUMBIAN ATLANTIC CHARTS

Ⓒ Egerton Sykes 1968

Whilst in the United States a year or so ago I was fortunate enough to attend the unveiling of the statue of Leifr Ericsson at Newport Mews Mariners Museum, on October 9th which had just been named as Leifr Ericsson Day by President Johnson. The event coincided with the pre publication press release from Yale University of details of the Vineland map which had been discovered sewn into the covers of two separate books, one of which was the "Tartar Relation".

The description of the portion of North America shown on the map as Vinlandia, combined with the earlier date 1440 AD proves conclusively that people had been to North America well before the time of Columbus.

To my mind the publication of the new map and of the Tartar Relation in one expensive book constituted somewhat of a non sequitur as the two subjects are only casually related. The number of people likely to be professionally interested in both is minimal.

The Yale Map undoubtedly takes precedence over the Behaim Map of 1492, which - to my mind - showed the West Indies; and the other contestant: the Piri Reis Map of 1513. I have heard reports of an even earlier map from Soviet Sources but I have as yet not been able to verify the details.

The discovery of the Yale Map was due to the fact that Mr. Laurence Whitten an antiquarian bookseller, first noticed the map in a copy of Brida's "Tartar Relation", and brought it to the attention of Alexander O. Vietor and Thomas E. Marston of Yale University. The crux of the find was a map measuring 11 x 16 Inches including a representation of Greenland and also of Vineland, which was shown as discovered by Bjarni and Leif.

However what is interesting about the Yale Map is that it is precisely that island mass which is there called 'Vineland' which is referred to as Cipango on the Toscanelli Map, as redrawn by Kretchner. One is inclined to wonder whether the "Cipanda" and islands with similar names which are to be seen on these early maps are in reality the "Vineland" of the Yale Map but with the wrong geographical names applied to them. By this is implied that the knowledge of the existence of the North American Coast Line, although erroneously assumed to be but a large island mass instead of a continent, had been known for a considerable time.

At the time I observed that it seemed out of place for the Vinland Map to be accepted whilst for over a century the evidence on the basis of which it had been drawn up had been denounced as incorrect. I have no hesitation in accepting the Vinland Map as genuine, being composed of Nordic additions to an already existing map or maps.

But it must be accepted that there have not been any really new world maps for centuries, every successive map has always been based upon an earlier version which time and experience has shown to be out of date. We have a historical series of maps dating back to Thales (BC 640) and Anaximander (BC 550), if not earlier. In a paper published in 1962 by Charles Hapgood, it was suggested that the Arabs carried on the tradition of the Greeks and the Romans in the preparation of portulans and maps. This I seriously doubt.

The reasons are simply that the Arabs were very bad map makers, although they were excellent geographers. Piri Reis compiled his map from Western sources and not from local ones. The Romans were such extremely bad sailors and navigators that their views on travel by sea would have been almost valueless. As for the Greeks the tales of Homer and the Argonautica represented the end of their sea going efforts for centuries. The real sources of all the ancient sea lore appear to have been the Phoenicians, the Minoans (before BC 1400), and the Etruscans, all of whom ventured outside the Pillars of Hercules, frequently with the backing of Egyptian money.

With the advent of the dark ages when the barbarians sacked Rome, knowledge died until it was partially revived by such Arab scholars as Masoudi, Edrisi, etc. But although they carried on the tradition they produced no maps, and it seems that the first maps were the work of Venetian adventurers and their Spanish and Portuguese competitors, with the backing of the knowledge of the Berbers who had a tradition of Atlantic sailing from the days of Carthage if not earlier.

There is a large amount of still extant source literature, probably about half of that available in the times of Columbus. The story of Brandan, stated to have occurred in 551 AD, a date I consider to be several centuries too late, compiled in the 15th Century was published both by Sigebert in 1100 AD and in the Book of Lismore. The story of Maeldune was published in both the Book of the Dun Cow (1100 AD) and the Yellow Book of Leccin, in the 9th Century. The story of O'Corra was published in the Book of Fermoy again at about the same time. All these stories were well known in Western Europe. Branden's tale of the whale was not taken from the Adventures of Sindbad as whales are not much known in the Indian Ocean. There were other Celtic explorers such as Barinte, Brecan, Brighleith, Cormac, Fion Barr, Labhraidh, Laegaire MacGrimthain, MacErca, Tadg, and Osin, whose stories are no longer available, but may well form parts of the three mentioned above. There was a Norman French version of Branden's journey written in the 12th Century, a translation of which was published in Blackwoods Magazine in 1836.

The work of Edrisi, who relied to a considerable extent on that of Magruin, is only available at the moment in French and Arabic. There is a great need for an annotated edition in English. There is an account in Arabic in the National Library in Paris of a voyage to the Caribbean about 1380, a century before that of Columbus.

Among the other sources which Columbus may have consulted were such writers as Honore d'Autun whose "Imago Mundi" was published in the 12th Century; Adam of Bremen: "Descriptio" published in 1076; Jehan Brecva - source of the Madoc story; Nicolas of Lynn: "Inventione Fortunata" published in 1364; Sigebert, writing on Branden in 1112; William of Worcester who wrote of voyages to America in 1480/1 etc.

Hapgood, as also several later writers, refer to

Oronteus Finaeus as having been the source of the Piri Reis Map, but I am inclined to doubt this on the matter of dates. Toscanelli lived from 1397 to 1482, having died twelve years before Columbus made his first journey. Orontus Finaeus, on the other hand produced his well known map many years later. It is on record that John Dee met him whilst a student at the University of Louvain in 1649, some years after the production of the famous Oronteus Finaeus map, which could not possibly have served as a source for Piri Reis.

The original Piri Reis Map was dated 1513, twenty three years after the voyage of Columbus and was handed over to Sultan Selim the 1st in Cairo in 1157. Its source was the map which Christopher Columbus presented - or should have presented - to the King of Spain in 1498, of which all trace had been lost after the year 1500, at which time it fell into Turkish hands. A second edition of the Piri Reis Atlas appeared in 1526 when it was presented to Sultan Sulieman. In the introduction reference was made to the Map of the World which had been handed over in 1517.

At the moment it appears that a Spanish seaman who had a copy of the map used by Columbus was captured by the Turks in 1501 and that it was from this source that the Atlantic Ocean portions of the map were copied, but with additions showing the latest Portuguese discoveries up to 1508, from which it may be assumed that considerably later maps had by one means or another fallen into the hands of the Turks. An interesting minor point is that the map shows the Whale on which St. Branden was reputed to have lit a fire, thinking it to be an island.

However the real problem is where did Columbus get the map which fell into the hands of the Turks. He himself was no cartographer, and was obliged to reply on specialist aid in such matters. He wrongly assumed Haiti to be Cipango, a fact which comes out in the Piri Reis Map, and which can only have been copied from the original of Columbus. He also thought Cuba to be the mainland, as was shown by the Act of June 12th, 1494.

An interesting point is the showing of parrots on the Islands of Haiti and Costa Rica, bearing in mind that the stories of Branden, Corra and Maeldune, all include islands infested with parrots. The point is that whatever sources were used for the map of Columbus they were before his time and antedate the Vinland Map.

The only contemporary source is Toscanelli, a fact which comes out fairly clearly in the correspondence between Columbus, Pinzon, and the notes of Las Casas, in which reference is made to the "Map drawn by Paul the Florentine". This particular map dates back to 1474, a copy of it was sent to Canon Martens in Lisbon on June 23rd of that year. In it he says: "Therefore I send his Majesty a map made by my own hands on which are drawn your coasts and islands from which you should begin to make the journey ever toward the west and the places which you should reach, and how far from the Pole or from the equinoctial line you ought to diverge, and, of course, through how great a distance and through how many miles you ought to arrive at places most rich in every kind of spices and precious stones. And do not wonder if I call these regions the West, where are the spices which are commonly called the East, because to those sailing on expeditions to the lower hemisphere always following the West these regions will be found, and so to those going by land on expeditions through the upper hemisphere always towards the East, there they also will be discovered."

"And so the straight lines in the longitude of the drawn map exhibit the distance from the East toward the West, while the transverse lines exhibit the state from the South toward the North."

"I have also noted on the map, for the better information of the expedition, the various places at which you may possibly arrive. If by reason of the winds or some other cause they should come elsewhere than where they calculated."

"From the City of Lisbon by the West in a direct line are drawn on the map 26 spaces, each of which has 250 miles as far as the most magnificent and mighty City of Quinsay. For the circuit is one hundred miles, and it has ten bridges, and the name of this City means Cita del Cielo - City of Heaven - and many wonderful things are told of it concerning the multitude of its artifices and concerning its resources. This place is almost the third part of the whole sphere, which city is in the province of Magni, or in the neighbourhood of Cathay, in which land is the Royal Residence. But from the Island of Anillia, known to you, to the most noble island of Cipango are ten spaces; for this island is most rich in gold, pearls, and precious stones. And they cover the temples and palaces with solid gold; so that spaces to be traversed on the sea by unknown journeys are not great."

During the last war an excellent reproduction of one of Toscanelli's maps was published in "Signal", a German weekly paper for the Armed Forces. While this shows several islands in the Western Atlantic it is fairly obvious that this was an earlier production to the one which was given to Columbus and which formed the basis of the Piri Reis Map.

However it seems obvious that the Vinland Map and the Piri Reis Map, have a certain relationship to each other and it would appear that most of the information was drawn from a common pool of sources. Much of the Vinland Map came from Andrea Bianco (1436), which must have been a far better production than the Hereford Map of 1448, thus tending to show that there was a more intimate relationship between Nordic and Mediterranean geographers than there was with those of Britain, even although Nicolas of Lynn had reached the same regions in 1330, as described in his "De Inventione Fortunata" in 1364. The point I am trying to make is that none of these maps were original, every one was made up on the basis of earlier maps and portulans which are no longer available for consultation.

The manner in which this information was translated by the various cartographers shows that while there was a general acceptance of the existence of land masses to the West of Europe and to the East of the Indies, there was great uncertainty as to where these lay, mainly because none of the master mariners were cartographers and none of the map makers were master mariners. Piri Reis was an exception, but it must be realised that he had never penetrated into the waters of the Atlantic, except on short forays and therefore had to quote second hand like everybody else. Columbus himself was no map maker.

Bearing all this in mind, from where did these early cartographers get their information. Every sea captain who ventured out into the ocean took with him a portulan, a book of notes compiled by previous voyagers, which were amended and corrected as the occasion called for. But of all the hundreds of portulans which must have been in existence between the times of Columbus and the first Egyptian, Etruscan, Phoenician traders to venture outside the Pillars of Hercules practically nothing has come down to history.

The Egyptians left behind a couple of travel stories: The Two Brothers and the Shipwrecked Sailor; the Phoenicians left us the Voyage of Hanno; the Greeks left us the Odyssey and the Argonautica; the Irish left us the stories of Branden, Corra and Maeldune; the Welsh the Story of Madoc; the Norsemen the Vinland Sagas. And that is nearly the lot, except for the relations of the Arab historians from Masoudi to Edrisi who managed to accumulate a vast store of information, much of which is still awaiting translation.

The list of early map makers is a truly short one. Although it is possible that some of the classical authorities had concepts to the West of Gibraltar, the information that has come down to us is scarcely relevant. But the Renaissance scholars were another kettle of fish, and the list given below shows all those who might have been consulted:-

CLASSICAL SOURCES

BC 384-322	Aristotle: "De Mirab Auseult"
BC 1200 ?	Argonautica
AD 200	Aelian
AD 390	Ammianus: "Rerum Gesterum Libri"
BC 105	Alexander Polyhistor
AD 4th Cent.	Avenius, Festus
BC 489	Areistides
BC 550	Anaximander, made 1st map of world
BC 63-AD 12	Agrippa
AD 350	Avenius

BC 3rd Cent.	Crates of Mallos
AD 30-100	Clement, Saint: "Epistle to Corinthians"
BC 106-43	Cicero: "Dream of Scipio"
AD 45	Dionysius Periegetes
BC 520	Dionysius of Miletus
BC 40	Diodorus
BC 276-196	Eratosthenes of Cyrene
BC 484-407	Euripides: "Phaeton"
BC 77	Geminius of Rhodes
BC 500	Hanno
BC 4th Cent.	Heraclides Pontus
BC 550-476	Hecateus of Miletus
BC 320	Hecateus of Abdera
BC 484-425	Herodotus
BC 500	Himilco
BC 800	Joram, King
AD 400	Macrobius
BC 485	Mago
AD 43	Mela, Pomponius
BC 3rd Cent.	Mnaseas
BC 600	Necho
AD 1st Cent.	Periplus of the Erythraean Sea
AD 100	Plutarch
BC 135-51	Posidionius
AD 110-161	Ptolemy
BC 310	Pythias
BC 500	Scylax
BC 50	Sebosius
BC 82	Sertorius
BC 352	Timaeus
BC 372-287	Theophrastus
BC 640	Thales
BC 378-305	Theopompus
BC 116-27	Varro

MEDIAEVAL SOURCES

11th Cent.	Adam of Bremen
7th Cent.	Augustin, Oenugus
12th Cent.	Autun, Honore d'
1332	Ayala, Pedro
894	Balkh, Abou
1426-88	Beccario, the Geonese

731	Bede, The Venerable
1459-1507	Behaim, Martin
1476	Benicasa
1436	Bianca, Andreas
950	Biruni, Al
1450	Bristol Voyagers to America
1375	Catalan World Map
1500	Costa, Juan de la
1335	Dalorto
825	Dicuil
1339	Dulcert
1000-1066	Edrisi
12th Cent.	Eustachius of Thessalonica
750	Fergal, Saint. Archbishop of Solingus. Disciple of Eratosthenes of Cyrene
868	Ari Frode
1351	Geonese Chart
1426	Giraldi
999	Farroukh, Ibn
1394/1460	Prince Henry the Navigator
1448	Hereford Map
1332-1406	Khaldoun, Ibn
1351	Laurenz & Gaddiano
1170/90	Madoc Prince of Wales
1154	Magruin
943	Masoudi
1459	Fr. Mauro
1381	Medicean Portolano
1557	Miller, Christy
1271	Nameless British Sailor buried in Connecticut
1330	Nicolas of Lynn
1531	Orontus Finaeus
1536-1624	Orscellar, Mariano Juande de
1527-1598	Ortelius, Abraham
Uncertain	Palacio Diego Gardia de
1455	Pareto
1560	Pinelli
1480	Pinzon, Perez
1413	Piri Reis
1367	Pizigani Brothers

1468	Roselli
1450	Royllo
1508	Ruysch
1560	Salerni
1590	Stefansson, Sigurdur
1558	Thevet, Andre
1397-1482	Toscanelli, Paolo
1439	Valesqna
868	Vilgerdson, Floke
1450	Vinland Map
14th Cent.	Wardi, Ibn El
1365	Zeno Brothers.

N.B. The lists given above have no pretentions to be any more than those produced by a hasty glance through my card index. No attempt has been made to include the Nordic sources, of which the Erik and the Graenlending Sagas are the best known.

THE MOST RELIABLE ARCHAEOLOGICAL CLOCK

On various occasions I have pointed out that for an archaeologist to be able to date past events, the various systems such as Carbon 14, than the more sophisticated variants thereof, are not only extremely expensive, but tend to require samples which are really worthy of preservation.

However there are certain clocks, the dates of which have been recorded back into the distant past, and which are reliable to within minutes for the best cases and to within days for the worst. I refer to Eclipses of the Sun, Transits of Venus, Novae and Supernovae, and the Passages of Comets.

Of all these the latter are usually the most spectacular and the most likely to be recorded. The most regular of our cometary visitors is Halley's Comet, the dates of which have been calculated by Professor Michael Kamienski, to as far back as BC 9540. There are slight variations here in the datings as some authorities insert a year "0" between BC 1 and 1 AD, others consider there was no gap between the two. The period of this Comet varies between 74.7 and 79.6 years which definitely indicates that it is a member of our Solar System which has a sphere of influence about two Light Years in Radius, this being half the distance to the nearest Star.

Halley's Comet has been fortunate in that during its long recorded history it has managed to escape being torn to bits by the attractive forces of the major Planets, or even of having its course altered to any marked extent by them. Space, even within our Solar System is vast. It was once compared to a medium size bottle afloat in the Atlantic Ocean, on the surface of which nine corks had been dropped at various places. The chances of any one object encountering another one are extremely small.

For example Bible History is filled with references to Halley's Comet. Abraham was born in BC 1855, the year when Halley's Comet was on its Passage Minus 35; and on his 74th Birthday he saw it again. In BC 1161 the Trojan War began and Halley's Comet passed, this time Passage Minus 26. In BC 1008 David saw Halley's Comet (Minus 24) and decided to build the Temple. There are enough examples of this nature in the Old Testament and the early Jewish, Ugarit and Babylonian scripts, to enable us to fill in the background of history in a very satisfactory manner.

In the Americas we lack the necessary literary background, and although we have managed to check up several Transits of Venus and Solar Eclipses from the Central American datings, we are extremely short of cometary records. This cannot have been because they were not seen, these phenomena were world wide and visible almost everywhere. It would therefore appear that we may have misunderstood the meaning of the glyphs relating to cometary passages. Bearing in mind that I have on record the astronomical date of every passage of Halley's Comet back to Minus 135, in BC 9500, thanks to Professor Kamienski, if anybody thinks they have a glyph which might mean a comet, I will gladly supply the nearest passage of Halley's Comet to see if any accordance is possible. I would even publish the list of datings back as far as, say, BC 3000 if it would be of any help. Of course there have been other comets but this is the only one of which we know the timetable over such a long period.

On the same manner any stories in American Myth or Legend which refer to mysterious lights appearing in the sky can usually be accurately dated thanks to this list. But there are occasions in which it will not work. For example in BC 1759 a Comet was seen at the time of the destruction of Sodom and Gomorrah. But this was not Halley's Comet and we have not the slightest idea which one it was.

The best sources on ancient comets are Lubenicki, Amsterdam 1665 and Pingre, Paris 1783. A list of Professor Kamienski's works, together with records of Biblical datings appeared in URANUS Vol. 9 No. 3, March, 1963.

This does not imply that every archaeologist should also be an astronomer, but that at least he should have in the back of his mind a working acquaintance with the timings of Solar and Lunar Eclipses, Transits of Mercury and Venus, the probable dates of the appearance of Comets, and even a faint recollection of the dates of the Novae and Super Novae which have appeared in historical times.

For example we have the Meteor Swarms, such as the Perseds which turn up every year with unfailing regularity, and the Leonids which have a period of just over 33 years, having been discovered by Humboldt in 1799, and again seen in 1833, 1866, 1900, 1933 and 1966. By a simple calculation it can be established that the "Stars which seemed to flow from the height of Heaven to the lowest horizon, as though they crashed one upon another" seen by Bishop Radbod of Utrecht, were the Leonids. Surely something similar must have been reported by the Maya at the time, it is impossible that such a spectacular display could have passed unnoticed.

The Chaldeans had an Eclipse Cycle of 18 years 11 days (or one day less if five leap years had occurred), which they named a Saros. It was based on the fact that 223 Lunations and 19 Synodic Revolutions are nearly equal : 6585.32 days as against 6585.78 days. This elementary bit of astronomical information was known to every nation in the Old World, there seems no reason why it should not also have been known and used by those in the New World.

T.A. Joyce, writing in 1937 said:- "It is a fair assumption that acute observers such as the Maya took note also of the revolutions of other planets and their script includes a number of glyphs which, on presumptive evidence, may be regarded as planetary signs. But at present attempts at interpretation have not produced results which can be regarded as certain."

"The Maya paid attention to the phases of the moon. In this connection there is a most interesting series of glyphs.... the so called Supplementary Series, which normally though not invariably occupies a position between the day signs and the month sign terminating an Initial Series. They consist of eight individually recognisable glyphs.... One known as Glyph A, includes the sign representing the moon, is always accompanied by the numeral 9 or 10. It is highly probable ..... that this series refers to eclipses."

In my opinion this Supplementary Series provides data on all the astronomical factors I have mentioned above, it is not possible that the Maya who were highly competent astronomers can have failed to take note of and record these various phenomena. As we have historical evidence of their occurrence as far back as BC 1855, that should cover most of the datings which have so far cropped up in Maya history.

Similar evidence doubtless exists in South America but here we are far from being able to establish any acceptable explanation of the various glyphic systems encountered. Maria Reich has always maintained that the Nazca Desert Drawings are of astronomical - religious, significance. Has she been able to work out any known astronomical event of the past, in the series suggested above, or even something exceptional, which would fit in with them?

Donne said that "Man is not an Island". Well neither is archaeology, in these days of specialisation one cannot be expected to know everything, but one should, at least, be consciously aware of the existence of these ancillary factors. At the moment the various academic schools are all rushing off in different directions, building up fresh terminologies for things that are already better known under other names, and all under the happy illusion that the universe stands or falls by their efforts alone.

This is not a national failing, it is a universal one, and if we are not careful we shall end up as a series of groups having no means of intercommunication.

Within a year or eighteen months man will be on the Moon. Among all the athletic heroes who will participate in the expedition, are there any Selenologists who have also studied anthropology, archaeology, ethnography, botany, vulcanology, etc. But any or all of these problems may be encountered on arrival there.

Within five years man will be on Mars. Here again the same problems arise, but at least we have five years in which to train our scientists. The Russians are sending up women in spacecraft for a diversity of reasons: they weigh less, they eat less, they are less subject to boredom, and in certain situations their brains work more rapidly than men's. For biological reasons they may be less subject to the effects of free fall on the brain (time evaluation, judgement, etc.) experienced by both the Americans and the Russians. On a three year trip they might be better company than even the most enthusiastic young male astronaut.

E.S.

RADIATION TRAPPED IN THE EARTH'S MAGNETIC FIELD

Edited by Billy MacCormac, Dordrecht, 1966.

Reidel Publishing Company, 1966, 130 Florins.

This volume, the fifth in the Astrophysics and Space Library of Messrs. D. Reidel, comprises the Proceedings of the Seminar held at the Michelsen Institute of Bergen, Norway in 1965.

The great difficulty with astrophysics as a science is that it is tending to expand at a rate which is considerably faster than that at which such important volumes as this one can be produced. Even the abstracts of important papers published tend to run into thousands of pages every year and it is becoming more and more difficult for the scientist to cope with the increasing fragmentation of all fields of study and the proliferation of journals and publications in each and every section.

The best method of keeping in touch is by means of symposia where not only do you have the opinions of experts but also those of their fellow workers who may or may not agree with their ideas. Naturally these also get out of date, but the remarks and suggestions made are usually a safe guide to progress in any particular field for a couple of years after the actual operation, in other words the text is still valid by the time that you have it available in print.

This particular effort is concerned with radiations trapped within the magnetic field of the earth and its contents are of vital importance to the next generation of astronauts who are about to venture into space. The point is simply that the terrestial magnetic field traps and wards off from the human race the greater part of the various noxious radiations with which space appears to be drenched. But once we are outside it the chances of survival are pretty slim unless we can provide an adequate substitute protective shield. We send up our rockets and with the aid of the information thus provided we have a reasonable chance of knowing exactly what man is likely to encounter on his first trip to the Moon which may take place before Xmas this year.

Some of the sharpest minds in physics are trying to work out what is actually happening within the region controlled by terrestial forces, but the picture is still far from clear as is shown by the titles of some of the papers presented : To my mind one of the most important concerns the Effects of Trapped Radiation on Electronic Devices, by W.L. Browne of New Jersey. When we get a failure in the various servo mechanisms which control the entire set up in rocketry we are inclined to put it down to some manufacturing defect, without considering that it is precisely because we have failed to allow for the trapping of radiations within the rocket itself to an extent such as to disloke the electronic devices. At the moment we are fairly safe electronically as far as the Moon, but we must accept that to a great extent the Moon is very much within the terrestial magnetic field, whether the same conditions obtain on flights to Venus or to Mars is open to question. The subject was continued in "Radiation Damage" by R.E. Fischell and others of Silver Spring, Maryland. This was concerned with the degradation of solar cells, which was markedly retarded by quartz shielding.

"Predictions and Observations for Space Flight" by Adams & Mar, gave serious reminders of the risks inherent for humans in space flight under present conditions. However the whole of this section of the book, with its ordered calculations makes one wonder if we are not approaching the problem from the wrong angle. We humans are protected by the terrestial magnetic field which shields us from most undesirable radiations, i.e. those which the human system cannot deal with. In space, therefore, we should rather rely on artificially created magnetic fields which duplicate conditions on earth, than on shielding. It will probably turn out that the weight of the equipment involved will be no more than that envisaged at present.

Both the Russians and the Americans have recorded certain abnormalities in human behaviour while on orbital flights, this is happening at the time of writing in the Apollo Manned Orbital Flight, where the crew are scarcely out of the terrestial magnetic field, and the question is likely to become even worse with the first Lunar Flight.

With present methods of shielding it would seem that a return trip to the Moon is the maximum that any human being can stand, with the prospect that women might be biologically better equipped for this purpose.

"The fault, dear Brutus, lies not in the stars but in ourselves."

This publication should be on the bookshelf of all those concerned with instrumental or manned space flight, as a realisation of the difficulties involved should hasten the production of an adequate solution.

THE INDUS CIVILIZATION

by Sir Mortimer Wheeler. Cambridge University Press.
3rd Edition. Revised and enlarged, 1968.

In this reappraisal of the general features of the Indus civilization, justified by the accruing archaeological evidence, Sir Mortimer Wheeler summarises in his usual brisk and competent manner, the results of the work undertaken by various expeditions since the first phase of activity commenced at the two principal sites and those that were discovered later such as Chandu-daro, Lothal and Kalibangan.

Some forty seven years have elapsed since the preliminary excavations made at Harappa, a small town in the Montgomery district of the Punjab, revealed the first traces of this prehistoric Indian civilization, hints of whose existence had been indicated by the appearance of sealstones in intaglio and inscribed with a pictographic script. The site owing to the circumstances that for centuries it had been used as a brick quarry, yielded meagre results and a number of subsequent excavations have failed to produce much more. Sufficient has survived to demonstrate that the general layout of the city was comparable to Mohenjo Daro, 400 miles to the south-west, roughly 25 miles from Larkana in the Sind, the remains of this culture having first been discovered beneath a Buddhist stupa. The excavations at this site carried out in a systematic manner exposed the citadel which like that at Harappa is based on an artificial platform much eroded by the Indus floods. Among the structures of which this comprises are included a large granary, an elaborate bath, possibly a college or seminary and an assembly hall. This work finally established the chalcolithic character of this culture to which the author of the present volume applies the localised term Harappan though its wide distribution by far exceeding the Bronze Age civilizations of Babylon and Sumer make the general appelation "Indus" a more suitable one.

An earlier postulate of the climate conditions operative when this culture was in its heyday, indicated a much wetter climate. This hypothesis was derived from the prevalence of baked bricks more in evidence at Mohenjo Daro than elsewhere, the abundance of brick drains and certain scenes depicted on sealstones. Though some deterioration or denundation may have occurred through uneconomical tree felling, it now seems likely that the natural environment including a sparse rainfall has remained over a long period of time.

Flooding on a greater scale than that of a seasonal kind by the River Indus appear to have created problems at the lowland cities. This is particularly manifest at Mohenjo Daro where there is evidence of at least three devastating inundations necessitating considerable rebuilding and in the opinion of the author caused a decline in its later phase prior to its end which some archaeological evidence suggests was a violent one. That the nucleus of the Indus civilization appears fully developed, which as Sir Mortimer Wheeler stresses was essentially a lowland one, may therefore be due to hydrological effects having obviated its earliest traces. Its relationship with the heterogeneous number of ceramic industries found in the highlands, in central and southern Baluchistan, briefly summarised by the author, are apart from the evidences of trade, are negligible.

Based on the evidence drawn from the structures, artifacts and other material remains, a sketch is made what research has revealed concerning the arts and crafts, military organisation, farming and religion of the people that lived in these great metropolitan cities. These exhibit such sophisticated refinements as drainage and sanitation and even a system of weights and measures. The occurrence of etched carnelian beads in the Indus Valley sites such as Mohenjo Daro, Chandu-daro, identical to those found in Mesopotamian cities at Kish and Tell Asimar as well as a multitude of objects implying a brisk trade between the two civilizations whose urban cultures bear remarkable similar traits. That there have been a number of Indus Valley seals inscribed with the characteristic script still undecipherable at certain Mesopotamian sites, discoveries which reinforce the above links, may in the future contribute towards perhaps with a bilingual sign list the elucidation of the above.

Since the last edition of this work which constitutes a supplementary volume to the Cambridge Ancient History, the text has been extensively rewritten and enlarged to incorporate new material. Section drawings are included and there are also some excellent photographs of sculpture, pottery and sites.

L.M. Young.

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NEW WORLD ANTIQUITY

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American Editor	Vernon Leslie
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MISSING THE BOAT

American archaeology at the moment is rather in the position of a man visiting one of the great picture galleries of the world and spending his time studying the floor mosaics instead of looking at the paintings.

An enormous amount of pedestrian work is being carried out with considerable efficiency by the various schools of archaeology and anthropology attached to universities but at the same time there is a marked absence of speculative thought as to the part played by the Americas in the history of mankind.

We are faced at the moment with many contradictions between what the pundits have laid down and what the logical back tracking of historical postulates shows to be far more probable. The basic fallacy is that cultural development in the Americas proceeded on lines quite different to the rest of the world. This is absurd for, as the eminent head of a monastic order once remarked to me: "The problem of sin is that it is so frightfully unoriginal", a dictum which applies to all other patterns of human behaviour as well.

Bearing in mind that mankind has been subject to migratory movements ever since the evolution of speech, if not earlier, and that during much of that period movements between the great land masses were possible over land, e.g. one could walk from Africa to Europe or from Ireland to the French coast until fairly recently.

One is inclined to dismiss the stories of treks from Siberia to Alaska across the Bering Straits after BC 25000 as rubbish. During the odd century since Alaska was handed over to the USA some seven people attempted this crossing over the ice, of them at least five and probably six died in the process. And conditions nowadays are better than they have been in the past. But more proof is needed one way or the other, so far the Soviets do not seem to have produced any more than the Americans.

CHRISTMAS AND NEW YEAR GREETINGS

A Merry Christmas and a Happy New Year
to our readers wherever they may be.

CHANGE OF ADDRESS

The address of Markham House Press Ltd., publishers of New World Antiquity, will be 19 Berkeley Street, London, S.W.1, as from the 1st January, 1969. We much regret the move from Kings Road, where we have been for 21 years, but it was forced upon us by extraneous events outside our control.

Again we have these hotly disputed stories of elephants or mammoths having lived in North America. The more drawings of these beasts are produced the greater is the storm of denial. It is hard to see why this should occur, as members of the elephant family were to be found all over the world except, possibly, in Australia, there seems no reason why they should not have existed in N. America. But dispassionate investigation is called for, there is a half way path between refusing to accept any new idea and trying to jump on every band wagon which comes into sight.

It now appears probable that before the last Ice Age the pre Americans were roaming and hunting between the Klondyke and Panama. But we still do not know who they were and how they got there. This is one of the major questions that is usually pushed under the carpet in the hope that the younger generation with their professional futures at stake will be afraid of raising the matter, while their elders with long experience of being snubbed every time they dared to open their mouths will be too discouraged to do so now.

As for the Maya and their cousins, nobody is willing to explain how they suddenly appeared with culture which had taken at least two thousand years to develop. After all they must have come from somewhere.

I have suggested Cuba and Haiti as possible points of origin, others have suggested India or China. It does not really matter where they came from as long as it is accepted that they must have had a point of origin off the mainland. But somebody has got to have sufficient courage to admit that the problem exists and that until we have solved it we are in an intellectual backwater.

Again much of the confusion about South America would be avoided if we accept that the Amazon Delta has been building up for many thousands of years and that almost in historical times there was an inland sea there occupying several millions of square miles. Such a viewpoint throws a fresh light on the movements of peoples and should make it possible to accept that migrants came by ship to the Eastern slopes of the Andes and managed to climb them to reach the heights where they would be secure against enemies. I have always thought that the only possible cities on the jungle would have been ports which had been cut off from the sea by the building up of the Delta, in the same manner that Ur of the Chaldees, a seaport in BC 1799 is now in the middle of an arid desert. This particular hypothesis may be wide of the mark but it is a possibility which nobody seems prepared to risk investigating.

The really basic factor in all this is that until we actually know the truth, whatever it may be, the refusal to consider the various possibilities, denies the validity of scientific thought and brings in a most undesirable element of obstruction for obstruction's sake. In making these observations I am not fighting for myself but for future generations of archaeologists as it is improbable that satisfactory answers to the questions posed will be found during my lifetime. But they still have to be asked by somebody.

E.S.

SOME EARLY NORDIC TRAVELLERS TO AMERICA

by S.R. Varschavesky

1. The purpose of this report is to study new facts about the possibility of the inhabitants of the Orkneys having crossed to America before the Vikings.

Although the United States, on the basis of material then available, established October 9th as Leifr Ericsson Day, this does not solve the problem of who discovered America.

2. The search for artifacts and traces of the presence of the Nordics on the American mainland have not produced positive results. Various relics have been discovered but most of them have been the object of violent suspicion.

The Birdmores find of arms may belong to the Viking period, while the Kensington Stone with its Gothic inscriptions has long been suspect but is probably genuine.

The Newport Tower is not Nordic but may testify to some earlier unknown or unsuspected pre Columbian culture.

3. Helge Ingstad excavated the ruins of a village in Newfoundland which Hollins and Bird have accepted as being Norse.

Assuming that "Buh" means meadow, a word which had dropped out of use centuries before Liefr, Ingstad thinks that Liefr had an open camp in Vineland and a seasonal one in Markland.

Ingstad's discoveries attracted attention to other presumed Nordic finds. Mallery mentions houses and iron artifacts on Sops-Arm, also smelting furnaces, and other remains in North Carolina. It must be admitted that it is extremely difficult to convince American archaeologists of the existence of iron smelting furnaces before Columbus.

4. A contribution towards solving the problem of Nordic voyages across the Atlantic is given by the early legends of the arrival from the West of Glooscap, as mentioned by the younger Zeno in his story of Earl Sinclair of the Orkneys.

5. Glooscap appeared from the Atlantic Ocean before the generally accepted date for the coming of the white men and later returned to the land of his ancestors beyond the ocean. The story tells of his big canoe or island with trees and twigs on it, which may be taken to be a description of an European type ship with masts and sails. There are also reports of a strange magic song when the anchor was weighed.

6. The Book of Zeno was rejected by the great majority of historians as being at the best incorrect and at the worst a deliberate falsification, particularly by F.W. Lucas in 1898. However, since then, several experts including Bagroff, Taylor, Lethbridge and others have testified to the truth of the book. It may be taken that Zeno was following an actual manuscript, but distorted it by inserting certain letters which may or may not have been relevant.

7. Earl or Prince Henry Sinclair the "Sea King" of the Orkneys was of Scandinavian descent. Having settled in Scotland he first absorbed the local traditions of chivalry and piracy and after having conquered the Orkneys in 1401 assumed the nature of this nest of pirates also.

His interest in the lands to the West could have resulted from the tales which had been current in the Orkneys for at least 300 years before his arrival, particularly the stories told by fishermen who had been carried away by storms.

8. Interest in Zeno's book was revived by Hobbs in a series of articles, many of which were wrong, the booklet by Frederic Pohl in 1950 and a book "Crossing of the Atlantic before Columbus" by the same author in 1961.

Pohl found in Nova Scotia 17 sites connected with the Glooscap tradition, and from the Zeno book he concluded that these coincided with visits from the Orkney Islanders. It would not be correct to equate Glooscap with Sinclair but there is no doubt that he was a European and may possibly have taken part in one of the expeditions from the Orkneys.

The arguments submitted by Pohl include topographical folklore including stories from India, the rock carving of Sinclair at Westford Massachusetts, on which are shown his coat of arms, philogical records of the song of Glooscap, to which could be added place names.

In Nova Scotia there is the Bay of Chedoboctu which is the Micmac rendering of 'Big long bay' which could have come from the boctu or bight of the Germanic languages. Professor William H. Hobbs about 1940 traced the bituminous coal deposit at Stellaton, Nova Scotia as being the "great mountain casting forth smoke" of the Zeno narrative. One of his audience at a lecture on the subject was Fredrick Pohl. It would seem improbable that the Italian sailors could have confused burning pitch with flaming lava. The fact that these seams had been known for a long time before Zeno shows that he was in possession of documents not known to us.

Thomas Lethbridge, at that time Curator of the Museum of Archaeology and Ethnology of Cambridge University, confirmed that the arms on the shield of the Sinclair rock carving at Westport, were those of the Sinclair family.

The rhyming chorus of the Song of Glooscap is that of the weighing of the anchor songs of Northern Europe.

9. One must anticipate further important discoveries showing the impact of Nordic incursions on American soil. Logically the problem is no longer one of pre Columbian ties between Europe and America but rather one of transatlantic contacts in general. The Zeno narrative should henceforth be judged on its merits and not on the basis of pre conceived values.

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ROMANS AND PHOENICIANS IN THE FAR EAST

According to Robert Heine Geldern, writing in the Philosophical Historical Journal of the Austrian Academy, in 1961, Louis Malleret has discovered traces of a city in the Mekong Basin near Hanoi, possibly a port for the Kingdom of Funan, dating back to the second Century of our era.

Here were found a gold medal of the reign of Caesar Antonius Pius (138-161) dated 152 and another gold medal, undated, bearing the head of Marcus Aurelius (161-180), in whose reign a diplomatic or trade mission visited China (166). This city has been identified with the Cattagaria of Claudius Ptolemaeus (fl 161). It appears that although no Chinese appear to have reached Rome, trade between the two countries was quite extensive at the time.

This question of Far Eastern trade arose long before the Romans or even the Greeks. The Phoenicians had a trading post near Saigon about BC 1700. Terrien de Lacoupiere states that within twenty years of the admission of the Phoenician fleet into the Persian Gulf by Sennacherib their ships had arrived off the China coast (BC 680-642). However this appears to have been but a renewal of earlier links such as the arrival of the fleet of Hiram, the ally of Solomon, in BC 950 when they sailed on through the Torres Straits en route for Cairns.

From about the same time (BC 700) the Chinese were trading with Central America, a process which only ceased in 200 AD with the Han Dynasty. Heine Geldern suggests that a Roman terra cotta head with a Pylos, found at Calixtlahuaca, in the Valley of Toluca, West of Mexico City, may have reached Meso America by that route. External evidence has enabled the date to be fixed at 220 AD.

It is also suggested that after the Chinese dropped out of the trade, the large four masted vessels both of Hindu and of Chinese origin reported at the time indicate that this was quite possible.

There have been other finds of Roman material such as a torso of Venus found by Seler in Huaxteca and a hoard of Roman coins in Venezuela, still being studied by the Smithsonian. Individually none of these instances are of great importance but taken as a whole they indicate that there is something seriously wrong with the archaeological and historical approach both in America and in Europe.

The reluctance to admit that long before the upsurge of Western Europe, at the time that Rome was being conquered from the Etruscans, international sea born commerce was being carried out on a wide scale from Akbar/Elat to America via Indo China, and from the Straits of Gibraltar and the Barbary Coasts to Central and South America. Trade was as international then as now, ships sailed under various flags and were often crewed by people of a different race to that of the owners. In other words the situation was much as it is today, although on a smaller scale.

Trade by sea has always been safer and cheaper than pack trains overland if only because the danger from storm and piracy was less than from greedy tribal chiefs and organised banditry. For example the use of the Suez Canal as a weapon for international blackmail has only resulted in the transfer of the oil trade to huge tankers of a quarter of a million tons and upwards which would never be able to use the Suez canal as its widening to the extent needed is unsound both financially and technically. But the sea borne trade continues.

E.S.

THE BAHAMAS TEMPLE

Many readers will have seen accounts in the press of the discovery reported by Dr. Valentine and Dr. Rebikov of a sunken temple off the Bahamas, in June of this year.

From the air photographs available the structure may have served any purpose: palace, fort, temple, even private dwelling, but this is not of any great importance. What matters is the depth at which it lays, the exact dimensions and whether it is possible to find some fragment of material on which dating tests can be conducted.

I am inclined to think that the building belongs to the period before the Caribbean was flooded out by the Atlantic Ocean, an event which may have taken place at any time between BC 5000 and BC 3000, which would still make it the oldest building in North America. The shape is irregular, a square walled area with a smaller walled off area in the top left hand corner, the purpose of which is unclear. At the base of the square is a rectangle slightly overlapping its edges, the reason for this disparity in sizes is unclear. The size of the square is about 75 by 75 feet, with the rectangle having a width of some 25 feet and a length of 80 feet.

Dr. Valentine thinks it is Mayan, a conclusion which, on the basis of the evidence so far available, seems to be reasonable. Several years ago we reported on the discovery by Mr. Horace Gouvieva of Midland, Texas, of two square cut stone pillars off another one of the islands. Unfortunately Mr. Gouvieva faded out of the picture shortly afterwards and no further details are available.

It would seem highly probable that the whole of the bed of the Caribbean is dotted with buildings which were covered by the waters some thousands of years ago. The disaster in question was a purely local one and, in the opinion of the writer, is the one recorded in certain Maya glyphs telling of a hurried flight to the mainland.

The whole problem of underwater archaeology is highlighted by this discovery as owing to the almost complete neglect on the part of the official bodies it is obvious that any fresh finds will be made by amateur archaeologists who will promptly be disowned by their professional opposite numbers, with the result that by the time qualified experts get down to investigating the site it may well be too late.

This does not imply any criticism of Dr. Valentine and his associates but rather of the fact that there are far too many potential sites to be attended to by any one group of people. Between the East coast of Florida and the West Indies there have been many stories of sunken ruins, the majority of which have been turned down flat by the pundits on the usual grounds that anything which does not fit in with preconceived ideas is impossible. This rearguard action is all very well in theory but a horrible nuisance in practice as it means that much valuable material has become lost or destroyed by neglect.

It is suggested that a friendly notice circulated to sub aqua clubs, sailing and fishing clubs, and the like, asking them to report on any object of possible archaeological interest which they might find. Lists of data could be circulated monthly to the organisations interested to obviate overlapping or unintentional damage. It is no use for the professionals to try and hog it all, there are not enough of them with the necessary marine experience to cope. Most of Britain's greatest Treasures, such as Sutton Hoo, were discovered by amateurs.

Our friends the Marine Archaeology Research Society of Miami are continuing their investigations into the find and it is hoped that they will be able to produce further evidence in the nearest future.

APPROACHING BC 10,000

As archaeological research penetrates still further into our past, the dates which appeared fantastic forty years ago are now being accepted as commonplace. Nevertheless some discoveries made of late have tended to throw the whole jigsaw of history into confusion again.

For example the series of inscribed tablets found at Tartaria by a Roumanian archaeologist, Dr. Vlassa, date back to BC 4000 and contain writing of a type hitherto unknown and a thousand years earlier than the accepted date of BC 3000 for the origin of writing in Babylonia.

At the moment it is hard to find an explanation, all one can say is that a form of writing was known in Europe at least a thousand years before its discovery in the Tigris-Euphrates area. Does this mean that the

Sumerians did not discover writing but learned it from some other race. The tablets in question come from a deep sacrificial pit and do not fit in with anything else known about the area.

Or again who built the city of Catal Huyuk in Turkey in BC 6000 ? It is doubtful if it was the Hittites as they only arrived much later. The city shows temples, clay statuary in bas relief, and much ornamentation showing a matriachal fertility system of worship, thus predating the frantic anti feminist complex of the Old Testament. What is more there is every evidence of a caste system, having some resemblance to that of India. The discoverer James Mallaert, has recently published a book on the subject, which I have not yet seen.

All this goes to show that the cultural background of the Near East and Europe goes far further back than the ideas of the run of the mill archaeologist are willing to envisage. Within the next few years we should have an uninterrupted chain of cities and artifacts to BC 10,000 and even earlier.

I am indebted to Russell Robertson of Boston for this information. What I should like to know is if the Catal Huyuk ruins show traces of writing and, if so, whether it in any way resembles that of Tartaria, a scant 800 miles away. Although we are finding evidence of these hitherto unknown early cultures we must think in the widest possible terms and ask whether any cultures so near to each other and of fairly similar dates can possibly be separate and distinct.

As for Santorin/Thera this appears to have been a Minoan cultural outpost, but never a main centre. One can appreciate the political plugging which has gone behind this effort to prove Greek primacy in the Mediterranean, but to my mind it is just not good enough to be credible. That artifacts are to be found on Santorin is to be expected, the same can be said of every island in the Middle Seas, but that does not of itself prove anything.

E.S.

AN EARLY WORLD MAP

In checking up some information on Edrisi, the Arab geographer, it was noted that shortly before the death in 1154 of Roger the King of Sicily, he had completed his description of a great sheet of silver on which was inscribed a map of the world. The reference occurs in the Encyclopaedia of Islam.

I cannot trace any other reference to this map or to its author and wonder what was its subsequent fate after the end of the Kingdom of Sicily. Edrisi certainly drew much material from Magruin, the Arab sailor, but as far as I am aware he was not a cartographer. This world map would appear to be the earliest in Europe, it would be interesting to know if anybody else recorded it.

E.S.

BOOKS

Description of the Indies (c.1620), by Antonio Vazquez de Espinose.
Translated by Charles Upson Clark, Smithsonian Institution Press, 1968, (1st Edition 1942), 862 pages. Price $12.50.

A truly magnificent book of reference showing the strict limitations of the ecclesiastical framework within which the Spanish friars of the period had to operate.

Perhaps the most important feature is the mass of detail concerning the administrative work of a great colonial empire, as also the relatively small number of people required for the purpose as compared with similar operations nowadays.

In its scope the work resembles the publications issued by the General Staff before the occupation of an area by an invading army. Every scrap of information that is available is given in full. In addition there are recommendations about religious administration, education, civil administration and the like, many of which seem to have been adopted by the authorities.

One can only be grateful to the Smithsonian for reprinting this valuable work of reference for all those whose work is concerned with the early history of the Spanish Realm. The translation is of the highest quality and testifies to the wide knowledge of Charles Upson Clark.

E.S.

Oceanic Mythology, by Roslyn Poignant.
Paul Hamlyn, London 1966.

In this volume Roslyn Poignant gives an account of the mythology and beliefs of the peoples of Oceania. The area, which includes the great expanse of the Pacific with its innumerable islands, is for ethnological purposes divided into three parts, Polynesia, Micronesia, and Melanesia. The population of the latter region are dark or even black in colour with negroid traits and consist of the most primitive tribes of Papua, New Guinea and the outlying islands. Some of these may have found their way to the island groups of the Mariana, Marshall, Gilbert and Carolines, east of the Phillipines and fused with lighter elements into the Micronesians a brown-skinned people. That native tradition attributes the cyclopean monuments and extensive remains found on these islands to the Melansians, tends to sustain the hybrid composition of the Micronesian tribes who not only exhibit characteristics of former racial group but also other admixtures, a coalescence of varied elements.

Only the Polynesians who seem to have spread across the Pacific as far as Easter island and Hawaii and colonised New Zealand, and have a skin only a tinge darker than Europeans with intelligent aquiline faces have retained their racial purity. The mythologies of these diverse populations and peoples are reconstructed from the narratives of the missionaries, government officials and native sources that were recorded before their institutions and beliefs faded under the impact of European culture. The political imbroglio from which the Far East has seethed for some decades and military expediency has in addition caused further disintegration.

All three groups have their individual cosmological myths, stories of an allegorical kind accounting for religious practices, customs and taboos and other motifs such as these relating to the spirit-world and it seems that beliefs in ghouls, fairies, goblins, dwarfs, were as prevalent in Oceania as elsewhere. Heroes or deities such as the Polynesian god Maui and the Micronesian god Motikitik or Nareau are featured in several situations that vary from island to island, many of which are narrated with entrancing fidelity by the author of the above volume. As befitted seafaring peoples, navigational lore also has a part and Nareau and Maui are also frequently portrayed as fisher deities drawing islands some of large extent as well as food from the depths. These are often prefaced with sky raising myths several of which are quoted by Roslyn Poignant from Melanesia, Micronesia and Polynesia, which with the foregoing are parts of a cosmological concept, that conceives land emerging from the waters of chaos at the Creation.

Some of the primitive populations and tribes exhibit in their mythologies a sophisticated aspect as it has been observed in the practices of the Australoid aborigines who expressed their religious beliefs in elaborate ritualistic ceremonial. Australia itself does appear to have any sculptured and megalithic remains which are widespread throughout Oceania though the aborigines were not entirely isolated and have both racial and cultural affinities with the Melanesian tribes of Papua and New Guinea. An example of this influence may be cited in connection with the beliefs concerning beings of a sky world which are prominent in the Australian aboriginal mythologies, and in northern Kimberly are depicted on the face of a rock shelter.

Roslyn Poignant has dealt with an extremely vast and complicated subject most skilfully and prefaces her exposition with a historical background which describes the situation from contemporary records as found by Captain Cook and the European voyagers and colonists of the 18th and 19th centuries. The volume is provided with a short biography from which however the comprehensive treatise on the Pacific cultures by Thor Heyerdahl is surprisingly omitted. The illustrations both those in black and white and colour are excellent and contribute largely in creating a realistic background to the fascinating myths that the priests and wise men in their island habitats transmitted and preserved from a past that in many instances had partially faded in the mists of antiquity.

L.M. Young.

The Solar Spectrum, Edited by C de Jager. D. Reidel Publishing Company, Dordrecht, Holland, 1965.
Being the proceedings of a Symposium held at the University of Utrecht, 26-31 August, 1963.

The study of the Solar Spectrum is less than half a century old. For one thing the highly evolved spectroscopic equipment was unknown, for the next the possibility that such investigations might form a vital part of the as yet unconceived aero space sciences had not been imagined, finally there were neither the funds nor the astronomical experts for the purpose.

This Symposium was opened by Unsold of Kiel and Minneart of Utrecht, possibly the two greatest authorities on the Solar Spectrum, both of whom can claim to a life time of work in the field.

There is an interesting paper by Charlotte E. Moore-Sitterly on the current revision of the Spectrum Table. One is inclined to wonder if the latest developments in radio telescopes will not enable certain of the existing gaps to be filled in.

The paper by R. Grant Athay of the Boulder High Altitude Observatory, on the Chromospheric Spectrum at Eclipse has an interesting section on the Heavy Elements, i.e. those heavier than Helium, on which very little work has been done.

Hinteregger has a good paper on Rocket Spectra of the Chromosphere, a field in which development is probably faster than in any other, thanks to the continuous succession of rocket shots from the USA or Soviet Russia. Here the main problem is one of improved instrumentation allowing for slower scanning speeds.

Here the problem is a purely technical one, which, as far as the USA is concerned seems to be tackled with an increasing measure of success.

There are several papers on Solar Flares, a subject of vital interest for future generations of space travellers, in view of the danger from hard radiations.

In the last chapter there is an interesting note on electron plasma waves, the importance of which is only just being realised.

Like all the books in this series, this one is extremely good. In a field of work where nothing can ever be fully up to date, this collection of papers gives the basic knowledge required in all the aspects of the Solar Spectrum, and as such should be invaluable as a standard work of reference for all research workers in it.

E.S.

Fantasies of Gold, by E.B. "Ted" Sayles.
The University of Arizona Press, Tucson, Arizona, USA, 1968

Search for gold and treasure, whether buried or otherwise hidden, has always been a secret dream all of us cultivate in our very own dating back to the times we were schoolboys.

This book deals with such oddities as secret gold mines, elephant slabs from pre-Columbian sites, the mountain of Uranium ore, etc., and is very interesting to read. Its author is a professional archaeologist and may be gave proper consideration to the fact that Heinrich Schliemann, the founder of modern Archaeology, was a gold searcher himself and that many a successful discoveries he made came from old standing legends.

However, this book is not so "unscientific" as it would pretend to be, as actually a lot of information contained therein can be described to be "first-class" and some peculiar points connected with research work in ancient American sites are examined under a very reasonable point of view.

Needless to say that this book is quite easy to read, but if it happens that one tries and reads it again, the scientific background it is based on comes to light with a lot of questions, and what was a peculiar oddity becomes now a serious problem crying for an answer, such as the elephant slab from an ancient American site. Sometimes legends are only a different version of a true fact, and this is probably what "Ted" Sayles intended to say.

A.B.

Palaeo-Indian Culture in Kentucky, by Martha Ann Rolingson
Studies in Anthropology No. 2. University of Kentucky 1964

The ultimate objective of this study, though an analysis of the types of their characteristic artifact, the projectile point, is to provide as much data as possible concerning the distribution, environmental, and economic background of the Palaeo-Indian in Kentucky. The first of these aims can be regarded as having been achieved by the extremely competent classification of projectile points belonging to this horizon on a State basis, the material being derived from individual collections and sites throughout the region. All these artifacts belonging to what is generally termed the fluted Clovis type subject to minute variations in technique and local influences. This would seem to link these predecessors of American man with a definite industry which has affiliations with other areas as far north as Alaska, and in the other direction, New Mexico where at Clovis, the type name of the projectile points and at the Lehner in south eastern Arizona they have been found in association with the mammoth. Radiocarbon measurements at these sites indicate an antiquity of 11,000, or 12,000, but although Kentucky was not reached by the later stages of the Wisconsin Ice sheet, the Palaeo-Indians do not appear to have occupied the State until approximately 8000 B.C., a period of rising temperatures. This seems to suggest that the migrants entered the region from the south, whose geomorphology it appears from the available evidence as discussed in the chapter on physical environment remained comparatively unchanged throughout the Pleistocene. At this time the terrain was covered by deciduous forests, containing fauna not only of predominantly modern species but those such as woodland musk, ox, giant beaver, horse, tapir and mammoth. The total extinction of Pleistocene fauna at the final retreat of the Wisconsin glaciation, affords a parallel with Europe at the same stage though not exactly contemporary. The evidence appears to indicate that this fauna especially the mammoth, survived much later in the New World, in both instances must be attributed to a similar cause which is still unsolved.

L.M. Young.

The Ancient Middle-American Calendar System: its Origin and Development, by M. Wells Jakeman, Ph. D.
A Brigham Young University publication, Provo, Utah, 1947

Many years have elapsed since the publication of this excellent summary on the origin and development of the calendar system in ancient Middle-America.

Even though it dates back to 1947 when the importance of the Olmec civilization and its influence throughout the Mexican areas had not yet been so widely recognized, Jakeman's summary should perhaps be read before any other books or works dealing with the same subject. Actually, it gives such a clear and complete account on the calendar problem in Central America, with quite a lot of original information, translations and etymological comments on native words and names, etc., that the reader is supplied with a first-class background in a comparatively few pages which may help him find his way in such a difficult field as this.

The influence of the early Olmec cultures throughout Mexico and a large part of the Maya area was fully anticipated by Jakeman and actually he was writing that Olmec discoveries could throw new light on the beginnings of calendar in Central America before the Maya, which corresponds to the most up-to-date scientific views in the matter.

A.B.

The Cohonina Culture of Mount Floyd, Arizona. John C. McGregor. Studies in Anthropology, No. 5. University of Kentucky Press.

The excavations at Mount Floyd, 15 miles east of Ashfork and 7 miles north of Highway 66, was undertaken to establish the whereabouts of the permanent habitats of the Cohonina and of what they consisted. Also to investigate their earliest history and to determine to what extent other cultures within the area and their environment had influenced the development of this prehistoric Indian culture. The seven sites described yielded an abundance of ceramic sherds, of which at one place consisted principally of fragments of large vessels utilised it seems for water storage, indicating a dry climate and the absence of natural reservoirs. Several of these vessels were found in situ, along the west walls of one of the structures, crushed when the walls had collapsed. All these sherds with exterior designs of Black on gray, or Black on gray with Fugitive Red are contemporaneous, that seems to suggest that the time span of occupation was extremely limited though it must be noted that the material remains from the above early sites do not differ very significantly from those of a later period. The Cohonina in conjunction with their ceramic ware also made use of typical coiled basketry. Among the other clay artifacts discovered, were a tubular pipe, disks and spindle whorls and broken potsherds used as scrapers. Of the structures unearthed, the largest C had a number of rooms and showed evidence of rebuilding and also patio type, one room circular, and alcove houses. An examination of the trash heaps failed to yield any animal bones but the prevalence of metates and manos indicated that the Cohonina had corn and were farmers.

The styles of the Cohonina pottery designs indicate a stage between Pueblo I and II, giving a tentative time sequence of about 875-900 A.D. The Cohonina are assigned to the Patayan root and comparison with the early pottery of the modern Havusupai have indicated affinities with the former, a contention that is reinforced by the study of their house forms and other ethnographical details. This would suggest that the Cohonina were the prehistoric procursors of the Havusupai which would thus establish a continuity with the simple farming communities that flourished in the Pueblo area, and in both the southwestern and eastern regions of the United States during the period 900-1200 A.D. Recent archaeological research in New Mexico strongly implies that the roots of these communities that are representative of a Neolithic stage of development to use a European term, extend to a considerable antiquity. L.M. Young.

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